MR 249

MINERALS AND METALS SECTOR

SECTEUR DES MINERAUX ET DES METAUX

# MINING AND MINERAL

# PROCESSING OPERATIONS IN CANADA

1999

Natural Resources Canada

Ressources naturelles Canada

Canada

MINERALS AND METALS SECTOR

SECTEUR DES MINÉRAUX ET DES MÉTAUX

# MINING AND MINERAL PROCESSING OPERATIONS IN CANADA

## 1999

MR 249

Natural Resources Canada

Ressources naturelles Canada

© Minister of Public Works and Government Services Canada – 2000

Available in Canada through
your local bookseller or by mail from:

Geological Survey of Canada Bookstore
Otawa, Canada K1A 0E8

Catalogue no. M38-2/249E
ISBN 0-660-18079-0

Published by:
Minerals and Metals Sector
Natural Resources Canada

Telephone: (613) 947-6580
Facsimile: (613) 952-7501
E-mail: ajerome@nrcan.gc.ca

Internet site for MMS: http://www.nrcan.gc.ca/mms/ms-e.htm

Cette publication est aussi disponible en français, sous le titre
*Mines et usines de traitement de minéraux au Canada, de 1999*
Nº de catalogue : M38-2/249F
ISBN : 0-660-96304-3

This publication is printed
on recycled paper.

PRINTED IN CANADA

# Foreword

This report is a compilation of information relating to mines and processing facilities in Canada. The information was obtained primarily, as in previous years, by means of a questionnaire sent to all the companies concerned.

The first part, "Metal and Industrial Mineral Mines and Processing Plants in Canada," lists significant information concerning Metal Mines and Processing Plants, Industrial Mineral Mines and Processing Plants, and Lime Producers in Canada. This information includes, as of June 1, 1999, the name of the operator, the location of the mine or plant, and the mine or plant's capacity, processes, products, and other details of special interest.

The second part, "Metallurgical Works in Canada, Nonferrous and Precious Metals," lists the principal metallurgical works in Canada, as of June 1, 1999, that treat ores and concentrates of nonferrous and precious metals. Not listed are foundries, fabricating plants, and those companies that basically refine scrap and other secondary materials.

The cooperation of all those companies who contributed information and the individuals who assisted in the revision of this report is greatly appreciated.

For further information, please contact Agathe Jérôme, Senior Statistical Research Officer, by telephone at (613) 992-6065 or 1-800-267-0452, by facsimile at (613) 992-5565, or by e-mail at ajerome@nrcan.gc.ca.

Yvan Gauthier
Director
Minerals and Mining Statistics Division
Economic and Financial Analysis Branch
Minerals and Metals Sector

## NOTE TO READERS

This publication has been prepared on the basis of information available at the time of writing and is accurate to the best of our knowledge. The authors (Lorraine Ralph and Mary Maglaras) make no warranty of any kind with respect to the content and accept no liability, either incidental, consequential, financial or otherwise, arising from the use of this document. Any errors or omissions should be reported to Agathe Jérôme by telephone at (613) 992-6065 or 1-800-267-0452, by facsimile at (613) 992-5565, or by e-mail at ajerome@nrcan.gc.ca.

# Table of Contents


| | Page |
|---|---|
| FOREWORD | iii |
| ABBREVIATIONS | 1 |
| METAL AND INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS IN CANADA | |
| Metal Mines and Processing Plants by Province and Territory | 4 |
| Industrial Mineral Mines and Processing Plants by Province | 26 |
| Lime Producers by Province | 64 |
| METALLURGICAL WORKS IN CANADA – NONFERROUS AND PRECIOUS METALS | |
| Aluminum | 70 |
| Antimonial Lead | 71 |
| Arsenical Lead | 71 |
| Bismuth | 72 |
| Cadmium | 72 |
| Calcium | 73 |
| Calcium Lead | 73 |
| Cobalt | 73 |
| Copper | 74 |
| Indium | 76 |
| Lead | 76 |
| Magnesium | 77 |
| Mercury | 77 |
| Molybdenum | 77 |
| Nickel | 78 |
| Precious Metals | 79 |
| Selenium and Tellurium | 81 |
| Strontium | 81 |
| Titanium | 82 |
| Uranium | 82 |
| Zinc | 82 |

# Abbreviations

| | |
|---|---|
| ** | not available |
| C.I.L. | carbon-in-leach |
| C.I.P. | carbon-in-pulp |
| COMEX | Commodities Exchange, Inc. |
| conc. | concentrate |
| CRED | Copper Refinery Electrowinning Department |
| E | east |
| g/t | grams per tonne |
| hr | hour |
| ISO | International Standards Organization |
| KCl | potassium chloride or muriate of potash |
| kg | kilograms |
| km | kilometres |
| lb | pounds |
| lb/y | pounds per year |
| mm | millimetres |
| Mo | molybdenum |
| Mt | million tonnes (or megatonnes) |
| Mt/y | million tonnes per year |
| N | north |
| NE | northeast |
| NW | northwest |
| O | open pit or quarry |
| oz | ounces |
| S | solution mine |
| SE | southeast |
| SW | southwest |
| t | tonnes |
| t/d | tonnes per day |
| t/y | tonnes per year |
| tU | tonnes of uranium |
| Twp. | township |
| U | underground mine |
| W | west |
| y | year |

## Metric Conversion Factors

| | | |
|---|---|---|
| 1 tonne | = | 1.1023 short tons |
| 1 tonne | = | 0.9842 long tons |
| 1 m | = | 1.0936 yards |
| 1 g | = | 0.0321 oz (troy) |

100-04947/

# METAL AND INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS IN CANADA

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **NEWFOUNDLAND AND LABRADOR** | | | | | | |
| **Cliffs Mining Company**<br>Wabush Mines<br>P.O. Box 878<br>Sept-Îles, Quebec<br>G4R 4L4<br>Telephone: (418) 964-3016<br>Facsimile: (418) 962-9876 | Scully mine and concentrator, Wabush, Labrador/O | 1965 | 16 500 iron ore conc. | Crush and grind, spiral and high-tension separation of specular hematite | Iron ore conc. | Conc. shipped to Pointe-Noire for pelletizing; iron ore pellets shipped to steel plants in North America and Europe through participating companies: Stelco Inc., Dofasco Inc., Acme Steel Company, and Cleveland-Cliffs Inc. |
| **Iron Ore Company of Canada (IOC)**<br>100 Retty Street<br>Sept-Îles, Quebec<br>G4R 3E1<br>Contact: Mr. Keith Eldridge<br>Telephone: (418) 968-7677<br>Facsimile: (418) 968-7108 | Labrador City/O | 1962, expanded 1973 | 100 000 specular hematite | Spirals and magnetic separators, Reichert cones, pelletizing, including flotation plant | Iron ore conc. and pellets, including Direct Reduction Pellets | Plant capacity of 17.0 Mt of conc., of which 12.5 Mt can be pelletized. Shipments to North America, Europe and the Far East. |
| **Richmont Mines Inc.**<br>Nugget Pond Division<br>P.O. Box 580<br>Baie Verte, Newfoundland<br>A0K 1B0<br>Contact: Mr. J. Steven McAlpine<br>Telephone: (709) 661-5162<br>Facsimile: (709) 661-5154 | Nugget Pond mine/U | April 1997 | 340 | C.I.P. | Gold, silver | Underground mechanized mine. Reserve grade is 10.9 g/t. |
| **Roycefield Resources Ltd.**<br>111 Saint George St., Suite 200<br>Moncton, New Brunswick<br>E1C 1T7<br>Contact: Mr. James Gibson<br>Telephone: (506) 857-8636<br>Facsimile: (506) 857-9211 | Beaver Brook mine and plant in central Newfoundland, 40 km SW of Glenwood/U | 1997 | 450 | Flotation | Stibnite (antimony) concentrate | The mine and plant have not officially started. Some processing was done to commission the mill. The mine and mill are presently on care and maintenance. |

## NEW BRUNSWICK

| | | | | | | |
|---|---|---|---|---|---|---|
| **Apocan Inc.**<br>550 Route 635<br>Lake George, New Brunswick<br>E6K 3N6<br>Contact: Mr. Wayne Marshall<br>Telephone: (506) 366-2885<br>Facsimile: (506) 366-2008 | 40 km SW of Fredericton, near Lake George/U | July 1996 | 500 short tons/day | | Antimony | The Lake George antimony mine has been out of production for a period of 2 1/2 years due to low metal prices. In the fall of 1997, the mine was placed under care and maintenance in hope of keeping the site available for a prompt start-up in the event of an antimony price increase. On May 1, 1998, all underground equipment was taken to the surface and the dewatering pumps were turned off and removed. The mine is currently flooded. |
| **CanZinco Ltd.**<br>P.O. Box 26<br>Bathurst, New Brunswick<br>E2A 3Z1<br>Contact: Mr. John McCombe<br>Telephone: (506) 546-1999<br>Facsimile: (506) 548-1100 | Caribou mine/mill, 50 km W of Bathurst/U | July 1997 | 3 000 | Semi-autogenous grinding, flotation | Lead concentrate, zinc concentrate | Operations suspended in August 1998. |
| | Restigouche mine/O | July 1997 | | | Lead concentrate, zinc concentrate | Operations suspended in August 1998. |
| **Noranda Inc.**<br>Brunswick Mine<br>P.O. Box 3000<br>Bathurst, New Brunswick<br>E2A 3Z8<br>Contact: Mr. Chris Larsen<br>Telephone: (506) 547-6112<br>Facsimile: (506) 547-6191 | No. 12, Bathurst, Gloucester County/U | 1964 | 9 000 | Flotation | Zinc conc., lead conc., copper conc., bulk conc., silver | Zinc conc. is shipped to N.V. Union Minière S.A., Belgium; Canadian Electrolytic Zinc Limited, Valleyfield; and others. Lead conc. is shipped to the company's smelter at Belledune; copper conc. is shipped to Noranda Inc. (Mines Gaspé Division) at Murdochville, Quebec. |
| **Noranda Inc.**<br>Heath Steele Division<br>P.O. Box 400<br>Newcastle, New Brunswick<br>E1V 3M5<br>Telephone: (506) 623-4700 | 55 km NW of Newcastle, Northumberland County/U, O | 1957, expanded 1975 | .. | .. | Copper conc., lead conc., zinc conc., bulk lead-zinc conc. | Resumed operations in July 1989 following a five-year closure. Also processing ore from the adjacent Stratmat ore zone. Mine closed in mid-October 1999. Mill closed at the end of October 1999. |

## QUEBEC

| | | | | | | |
|---|---|---|---|---|---|---|
| **Agnico-Eagle Mines Limited**<br>LaRonde Division<br>Highway 395, Préissac<br>P.O. Box 400<br>Cadillac, Quebec<br>J0Y 1C0<br>Contact: Mr. Jean Robitaille<br>Telephone: (819) 759-3644<br>Facsimile: (819) 759-3641 | LaRonde mine, Cadillac Twp./U | 1988 | 2 000 | Flotation | Gold, copper conc., zinc conc. | |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **QUEBEC (cont'd)** | | | | | | |
| **Aur Resources Inc.**<br>Aurbel Division<br>P.O. Box 7000<br>Val-d'Or, Quebec<br>J9P 5K3<br>Telephone: (819) 825-5125 | Aurbel mill, Bourlamaque Twp. | 1981 | 1 400 | Flotation, cyanidation | Gold bullion | Gold mill operates as custom mill following the closure of the Dumont and Ferderber mines in 1994. The mill was put on standby in 1998. |
| **Aur Resources Inc.**<br>Louvicourt Division<br>5999 - 3rd Avenue East<br>P.O. Box 2117<br>Val-d'Or, Quebec<br>J9P 6V2<br>Contact: Mr. Michel Rodrigue<br>Contact: Mr. Sylvain Ducheene<br>Telephone: (819) 736-3551<br>Facsimile: (819) 736-7221 | Louvicourt mine, Louvicourt Twp./U | 1994 | 4 000 | Flotation | Copper, zinc, gold, silver | |
| **Aurizon Mines Ltd.**<br>P.O. Box 160<br>La Sarre, Quebec<br>J9Z 2X5<br>Telephone: (819) 339-5621 | Casa Berardi East and Casa Berardi West mines/U | 1988 | 2 200 | Cyanidation, C.I.L., Knelson tabling | Gold | On care and maintenance since May 1997. |
| **Aurizon Mines Ltd.**<br>Beaufor Division<br>P.O. Box 487<br>Val-d'Or, Quebec<br>J9P 4P5<br>Telephone: (819) 874-4511<br>Facsimile: (819) 874-3391 | Beaufor gold project, Pascalis Twp. | 1996 | 550 | | Gold | Commercial production began in January 1996. Minerals are treated at Camflo Mill Inc. |
| **Barrick Gold Corporation**<br>Suite 2700, Royal Bank Plaza<br>200 Bay Street<br>P.O. Box 119<br>Toronto, Ontario<br>M5J 2J3<br>Telephone: (416) 861-9911<br>Facsimile: (416) 861-2492 | Bousquet complex, Bousquet Twp. | #2 mine 1990 | ** | Gravity, flotation, cyanidation | Copper conc., gold and silver bullion | |
| | East Malartic mill, Fournière Twp., Malartic | 1938 | 3 000 | Gravity, flotation, cyanidation | Copper conc., gold precipitate, gold bullion | Barrick Gold Corporation acquired Lac Minerals Ltd. in 1994. In early 1995, the mill's capacity was increased to 3000 t/d. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Billiton Metals Canada Inc.**<br>Les Mines Selbaie<br>Villebois, Quebec<br>J0Z 3V0<br>Contact: Mr. Gérard Bégin, General Manager<br>Telephone: (819) 756-2491, ext. 217<br>Facsimile: (819) 756-2684 | Les Mines Selbaie, Brouillan Twp./O | 1981, expanded Oct. 1986 | 10 000 | Flotation | Copper conc. and zinc conc. containing gold and silver | Copper conc. is shipped to Noranda Metallurgy Inc. Zinc conc. is shipped to Canadian and international markets. |
| **Cambior inc.**<br>Suite 850<br>800 René-Lévesque Blvd. W.<br>Montréal, Quebec<br>H3B 1X9<br>Contact: Mr. Robert LaVallière, Manager<br>Telephone: (514) 878-1282<br>Facsimile: (514) 878-3324 | Bouchard-Hébert mine (former Mobrun mine), Dufresnoy Twp., 30 km N of Rouyn-Noranda/U | 1995 | 2 800 | Flotation | Copper conc., zinc conc. | |
| | Doyon mine, Cadillac, Bousquet Twp./U | 1980 | 3 700 | Cyanidation, C.I.P. | Gold | Cambior inc. controls 100% of the Doyon mine since January 1998. |
| | Gonzague Langlois mine (former Grevet mine), 35 km NE of Lebel-sur-Quévillon/U | 1996 | 2 000 | Flotation | Zinc, copper | Started production in 1996. 100% owned by Cambior inc. Mine production was interrupted from November 1996 to July 1997 due to weakness in the price of zinc and to modify the mining technique. Mining restarted in July 1997. |
| | Mouska mine, Cadilac, Bousquet Twp./U | 1989 | 300 | Cyanidation | Gold | Since the company acquired 50% of the Doyon mine in January 1998, the operations of the Mouska mine have been combined with those of the Doyon mine. Ore from the Mouska mine is processed at the Doyon mine. |
| | Niobec mine, 14 km NW of Chicoutimi | 1976 | 2 200<br>1 800 | Flotation, conversion from niobium pentoxide to ferroniobium | Niobium pentoxide, ferroniobium | The Niobec mine is jointly owned by Teck Corporation, which operates the mine, and Cambior inc., which is responsible for the marketing of the ferroniobium. |
| | Sleeping Giant mine, 80 km N of Amos/U | 1993 | 900 | Cyanidation | Gold | Cambior manages the operation and shares ownership equally with Aurizon Mines Ltd. |
| | Yvan Vézina mill, Rouyn-Noranda | 1982 | 1 100 | Cyanidation, C.I.P. | Gold, silver | Mill treats ores and concentrates from four Cambior inc. mines. The plant is now closed. |
| **Cliffs Mining Company**<br>Wabush Mines<br>P.O. Box 878<br>Sept-Îles, Quebec<br>G4R 4L4<br>Telephone: (418) 964-3016<br>Facsimile: (418) 962-9676 | Pelletizing plant, Pointe-Noire | 1965 | 16 500 pellets | Pelletize specular hematite-magnetite iron ore | Iron ore pellets | Conc. from the Scully mine of Wabush Mines in Labrador; iron ore pellets are shipped to steel plants in North America and Europe through participating companies: Stelco Inc., Dofasco Inc., Acme Steel Company, and Cleveland-Cliffs Inc. |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **QUEBEC (cont'd)** | | | | | | |
| **Inmet Mining Corporation**<br>Suite 3400, Aetna Tower<br>79 Wellington Street West<br>P.O. Box 19, Station Toronto-Dom.<br>Toronto, Ontario<br>M5K 1A1<br>Contact: Mr. G.S. Wells<br>Telephone: (819) 764-6666, ext. 223<br>Facsimile: (819) 764-6404 | Norbec mill, Duprat Twp./U | 1963 | 1 350 | Flotation | Copper conc. | Plant to be dismantled. Reclamation in progress. |
| | Troilus mine, mill and concentrator, 175 km N of Chibougamou/O | January 1, 1997 | 15 000 | Gravity, flotation | Gold, copper conc. | |
| **ITEC-MINÉRAL INC.**<br>Suite 2800<br>1800 McGill College Avenue<br>Montréal, Quebec<br>H3A 3J6<br>Telephone: (514) 281-8434<br>Facsimile: (514) 281-6247 | Norebec-Manitou, Val-d'Or | 1980 | 6 000<br>900 | Preconcentration, cyanidation | Precious metals, base metals, industrial minerals | Mine tailings recycling to neutralize acid drainage and recover metals. |
| **McWatters Mining Inc.**<br>Val-d'Or Operation<br>Kiena Gold Mines Division<br>300 - 3rd Avenue East<br>Val-d'Or, Quebec<br>J9P 4N8<br>Contact: Mr. Roger Toussaint<br>Telephone: (819) 738-4031, ext. 5330<br>Facsimile: (819) 738-5910 | Dubuisson/U | 1984 | 1 700 | Crushing, semi-autogenous grinding, cyanidation, C.I.P. filtration | Gold bullion | |
| **McWatters Mining Inc.**<br>Val-d'Or Operation<br>Sigma Mines Division<br>300 - 3rd Avenue East<br>Val-d'Or, Quebec<br>J9P 4N8<br>Contact: Mr. Marc Lafontaine<br>E-mail: lafontaine.marc@mcwatters.com<br>Telephone: (819) 825-4182, ext. 1213<br>Facsimile: (819) 874-1994 | Bourlamaque Twp., Val-d'Or/U | 1937 | 2 000 | Cyanidation, C.I.P. | Gold bullion | Gold bullion bars are shipped to Johnson Matthey Limited at Brampton, Ontario, for refining and then sold on free world markets. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Meston Resources Inc.**<br>P.O. Box 400<br>Chibougamau, Quebec<br>G8P 2X8<br>Contact: Mr. Raymond Fournier<br>Telephone: (418) 745-2537<br>Facsimile: (418) 745-3238 | Joe Mann mine,<br>La Dauversière,<br>Chibougamau/U | 1952 mine | | • • | • • | Gold, copper, silver conc.; gold and silver bullion | Presently, 1200 t/d are trucked 65 km to the Meston mill in Obalski Twp. Copper conc. is shipped to Noranda Minerals Inc. Gold bullion is shipped to the Royal Canadian Mint in Ottawa. |
| **MSV Resources Inc.**<br>Suite 1405<br>1155 University Street<br>Montréal, Quebec<br>H3B 3A7<br>Contact: Mr. Alain Blais<br>Telephone: (418) 748-7691<br>Facsimile: (418) 748-7696 | Copper Rand mine,<br>McKenzie Twp.,<br>Chibougamau/U | 1959 | 3 000 | Flotation, gravity | | Copper-gold-silver conc., gold bullion | Copper Rand mine has a mill at the mine site. Deepening shaft. |
| | Corner Bay,<br>Lemoine Twp./U | 1997 | | • • | • • | Copper | Project on hold. |
| | Eastmain mine | 1993 | | • • | • • | Gold ore | Project on hold. |
| | Portage mine,<br>Roy Twp./U | 1959 | | • • | • • | Gold-copper-silver ore | Closed in 1997. Ore exhausted. |
| **Noranda Inc.**<br>Horne Smelter<br>P.O. Box 4000<br>Rouyn-Noranda, Quebec<br>J9X 5B6<br>Contact: Mr. Claude Bélanger<br>Telephone: (819) 762-7764<br>Facsimile: (819) 762-1976 | Gallen,<br>Rouyn-Noranda/U | 1997 | 28 000 t/y zinc concentrate | | | Zinc, silver, gold | Mine re-opened in October 1997 and is expected to operate for three years. |
| **Noranda Inc.**<br>Matagami Division<br>Matagami, Quebec<br>J0Y 2A0<br>Telephone: (819) 739-3511 | Bell Allard mine,<br>Matagami/U | | 2 800 | • • | | Zinc, copper | Bell Allard mine is under construction. Production is expected to begin in 1998. |
| | Isle Dieu mine,<br>Matagami/U | 1963 | | • • | • • | Zinc conc., copper conc. | Matagami concentrator treats ore from the mine. Copper conc. is shipped to the Horne smelter, Rouyn-Noranda; zinc conc. is shipped to Canadian Electrolytic Zinc Limited in Valleyfield, Quebec. Isle Dieu mine closed in November 1997. |
| | Norita mine/U | 1992 | | • • | • • | Zinc-copper ore | Mine closed in November 1997 due to ore depletion. |
| **Noranda Inc.**<br>Mines Gaspé Division<br>53, chemin de la mine<br>Murdochville, Quebec<br>G0E 1W0<br>Contact: Mr. Serge St-Pierre<br>Telephone: (418) 784-4201<br>Facsimile: (418) 784-2503 | E Zone orebody,<br>Murdochville/U | 1955, expanded 1967 | 3 000 | Flotation | | Copper conc. | Mine re-opened in February 1989. Conc. is treated at its own smelter. The operations stopped indefinitely on October 15, 1999, at the E Zone orebody. |
| | Orebody from Mount Copper | 1967 | 1 500 | Flotation | | Copper conc. | Conc. is treated at its own smelter. Part of the backfill material is used for hydraulic mine filling. Mining ceased indefinitely on April 2, 1999, at Mount Copper open pit. |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| | | | (tonnes/day) | | | |
| **QUEBEC (cont'd)** | | | | | | |
| **Norebec-Manitou Inc.**<br>Concentrator<br>P.O. Box 1566<br>Val-d'Or, Quebec<br>J9P 5Y8<br>Telephone: (819) 825-2788<br>Facsimile: (819) 825-9142 | Val-d'Or | 1993 | 600 | Flotation cyanidation | Gold, silver | Closed since January 1995. Re-opening is planned for the year 2000. |
| **QIT Fer et Titane Inc.**<br>1625 Marie-Victorin Highway<br>Tracy, Quebec<br>J3R 1M6<br>Contact: Mr. Terry Bowles<br>Telephone: (450) 746-3071<br>Facsimile: (450) 746-1101 | Mine at Lac Tio, wharf at Havre-Saint-Pierre/O | 1950 | 3 500 000 t/y of ilmenite ore, 900 000 t/y of pig iron, 1 100 000 t/y of titania slag, 440 000 t/y of high-purity steel billets, 200 000 t/y of concentrated slag | Spirals and magnetic separators, roasting, electric smelting, oxygen converter and continuous casting; approximately 60% of co-produced liquid pig iron is currently converted to high-purity steel billets and powder; leaching of titania slags; acid regeneration | Ilmenite conc., pig iron, titania slag, high-purity steel billets, iron powders, concentrated slag | Ilmenite ore is mined and partially crushed at Lac Tio; the plant at Tracy beneficiates ore and extracts iron and titania slag products by reduction. In 1999, the mill attained its full production capacity of titania slags (stock-keeping unit). |
| | Mill ore dressing and treatment plant, reduction plant | 1951 | | | | |
| | Steel mill | 1986 | | | | |
| | Titanium slag concentrator | 1997 | | | | |
| **Quebec Cartier Mining Company**<br>Suite 1400<br>1801 McGill College Avenue<br>Montréal, Quebec<br>H3A 2N4<br>Contact: Mr. François Pelletier<br>Telephone: (514) 285-1464, ext. 204<br>Facsimile: (514) 285-1978 | Mount Wright/O | 1975 | 50 000 conc., 125 000 ore | Autogenous grinding with spiral separation | Specular hematite conc. | Iron ore conc. is shipped to the pelletizing plant or to world markets. |
| | Port-Cartier | 1977 | 25 000 pellets | Pelletizing plant | Hematite pellets | Pellets are shipped to world markets. |
| **Richmont Mines Inc.**<br>110 Principale Avenue<br>Rouyn-Noranda, Quebec<br>J9X 4P2<br>Contact: Mr. Martin Rivard<br>Telephone: (819) 797-2465<br>Facsimile: (819) 797-0166 | Camflo mill, Malartic and Fournière Twp. | 1969 | 1 300 | Cyanidation | Gold bullion | Gold bullion bars are shipped to the Royal Canadian Mint in Ottawa, Ontario, for refining. |
| | Francoeur mine, Beauchastel Twp./U | 1991 | 750 | ** | Gold | Production began in October 1991. The ore is processed at the Camflo mill in Malartic. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Société Minière Raglan du Québec Ltée**<br>120, avenue de l'aéroport<br>Rouyn-Noranda, Quebec<br>J9X 5B7<br>Telephone: (819) 762-7800<br>Facsimile: (819) 797-0531 | Raglan mine,<br>65 km S of the northern tip of Ungava Peninsula/O | 1997 | 2 400 | | Nickel, copper, cobalt, platinum group metals | Commercial production began in April 1998. An expansion project in the year 2000 will allow an increase in production to 1Mt/y. |
| **Teck Corporation**<br>3400 Colombium Street<br>Saint-Honoré, Quebec<br>G0V 1L0 | Niobec mine,<br>Saint-Honoré/U | 1976 | 2 475 | Flotation | Pyrochlore conc. | All conc. (60% niobium pentoxide) is transformed into ferroniobium. Ferroniobium is sold to steel plants that produce high-resistance steel. |
| Contact: Mr. Eddy Dénommé<br>Telephone: (418) 673-4694<br>Facsimile: (418) 673-3179 | Niobec mine, Saint-Honoré de Chicoutimi | 1994 | 3 200 | Pyrometallurgy | Ferroniobium | The Niobec mine is jointly owned by Teck Corporation, which operates the mine, and Cambior inc., which is responsible for the marketing of the ferroniobium. |
| **Western Quebec Mines Inc.**<br>P.O. Box 268<br>Val-d'Or, Quebec<br>J9P 4P3<br>Contact: Mr. Claude Perreault<br>Telephone: (819) 874-6511<br>Facsimile: (819) 874-8131 | Joubi mine,<br>Val-d'Or area/U | 1989 mine | .. | .. | Gold | Processing off site by Camflo Mill Inc. Closed October 30, 1999. |

## ONTARIO

| | | | | | | |
|---|---|---|---|---|---|---|
| **Barrick Gold Corporation**<br>Suite 2700, Royal Bank Plaza<br>200 Bay Street<br>P.O. Box 119<br>Toronto, Ontario<br>M5J 2J3<br>Telephone: (416) 861-9911<br>Facsimile: (416) 861-2492 | Holt-McDermott mine,<br>Harker/Holloway Twp./U | 1988 | 2 000 | Cyanidation, C.I.L. | Gold, silver | Gold bullion is shipped to Johnson Matthey Limited at Brampton, Ontario. |
| **Battle Mountain Canada Ltd.**<br>P.O. Box 40<br>Marathon, Ontario<br>P0T 2E0<br>Contact: Mr. Jim Paynter<br>Telephone: (807) 238-1121<br>Facsimile: (807) 238-1013 | Golden Giant mine,<br>Hemlo/U | 1985 | 3 000 | C.I.P., cyanidation | Gold | |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ONTARIO (cont'd)** | | | | | | |
| **Battle Mountain Canada Ltd.**<br>P.O. Box 279<br>Matheson, Ontario<br>P0K 1N0<br>Contact: Mr. Richard Labine<br>Telephone: (705) 567-4862, ext. 210<br>Facsimile: (705) 567-4863 | Holloway mine,<br>60 km E of Matheson/U | October 1996 | 1 300 | | Gold | |
| **Claude Resources Inc.**<br>200 - 224 4th Avenue South<br>Saskatoon, Saskatchewan<br>S7K 5M5<br>Contact: Mr. Neil McMillan, President<br>Telephone: (306) 668-7505<br>Facsimile: (306) 668-7500 | Madsen mine,<br>Red Lake/U | 1938-76<br>(original mine) | 800 | Cyanidation, C.I.P | Gold | Extensive diamond drill program and mill refurbishment for the latter part of 1999 and the year 2000. |
| **Exall Resources Limited**<br>P.O. Box 605<br>Matheson, Ontario<br>P0K 1N0<br>Telephone: (705) 273-2344<br>Facsimile: (705) 273-2373 | Glimmer mine,<br>Hislop and Beatty Twps./U | 1997 | 1 000 | | Gold | Custom milling at the Macassa mine, near Matheson, Ontario (as of October 15, 1999). |
| **Falconbridge Limited**<br>Kidd Metallurgical Division<br>P.O. Box 2002<br>Timmins, Ontario<br>P4N 7K1<br>Contact: Mr. Brent Chertow<br>Telephone: (705) 235-7629<br>Facsimile: (705) 235-7318 | Kidd Creek mine,<br>Kidd Twp./O, U | 1966 | 10 000 | Flotation | Zinc conc.,<br>copper conc. | Copper conc. is processed at company smelter and refinery; also sold to others. Zinc conc. is processed at company refinery and surplus is sold to others. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Falconbridge Limited**<br>Sudbury Division<br>Falconbridge, Ontario<br>P0M 1S0<br>Contact: Mr. A.G. Hayward<br>Telephone: (705) 693-2761<br>Facsimile: (705) 696-3110 | Fraser mine, Levack Twp./U | •• | •• | | Nickel-copper ore | Ore from company mines is beneficiated in the Strathcona mill to produce nickel-copper conc.; the conc. is smelted to nickel-copper matte and shipped to Falconbridge's refinery in Kristiansand, Norway. Metals recovered include nickel, copper, gold, silver, platinum, palladium, iridium, rhodium, ruthenium and cobalt. |
| | Lockerby mine, Denison Twp./U | •• | •• | | Nickel-copper ore | Mining was suspended in June 1994 due to high operating costs and low nickel prices. Re-opened in December 1995. |
| | Onaping/Craig mine, Levack Twp./U | •• | •• | | Nickel-copper ore | |
| | Strathcona mine/mill, Levack Twp./U | 1968 | 10 000 | Flotation | Nickel-copper conc. | |
| | Thayer Lindsley mine | •• | •• | | Nickel-copper ore | |
| **Goldcorp Inc.**<br>Suite 2700<br>145 King Street West<br>Toronto, Ontario<br>M5H 1J8<br>Contact: Mr. R.R. McEwen<br>Telephone: (416) 865-0326<br>Facsimile: (416) 361-5741 | Red Lake mine, Balmer Twp./U | 1948 | 600 | Cyanidation, flotation | Gold bullion | Gold bullion bars are shipped to Johnson Matthey Limited at Brampton, Ontario, for refining. |
| **Inco Limited**<br>Ontario Division (Mills)<br>Sudbury, Ontario<br>P0M 1N0 | Clarabelle mill, Snider Twp. | 1971 | 36 300 | Magnetic separation, flotation | Nickel-copper and pyrrhotite conc. | Beneficiates ores mined in the Sudbury area. Bulk conc. is pumped to the Copper Cliff mill for dewatering. |
| | Copper Cliff mill, Snider Twp. | 1930 | •• | Dewatering | Nickel-copper bulk conc. | Bulk conc. is pyrometallurgically reduced to produce impure copper and nickel metals. |
| | Shebandowan mill, Hagey Twp. | 1972 | •• | Flotation | Nickel-copper conc. | Shut down in May 1998. |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ONTARIO (cont'd)** | | | | | | |
| **Inco Limited**<br>Ontario Division (Mines)<br>Sudbury, Ontario<br>P0M 1N0 | Coleman mine,<br>Levack Twp./U | •• | 1 400 | •• | Nickel-copper ore | |
| | Copper Cliff North mine,<br>Snider Twp./U | •• | 2 800 | •• | Nickel-copper ore | |
| | Copper Cliff South mine,<br>Snider Twp./U | •• | 3 000 | •• | Nickel-copper ore | |
| | Crean Hill mine,<br>Denison Twp./U | •• | 1 300 | •• | Nickel-copper ore | |
| | Creighton mine,<br>Snider Twp./U | •• | 4 000 | •• | Nickel-copper ore | |
| | Frood-Stobie mine,<br>McKim and Blezard Twps./U | •• | 8 300 | •• | Nickel-copper ore | |
| | Garson mine,<br>Garson Twp./U | •• | 2 000 | •• | Nickel-copper ore | |
| | Gertrude mine,<br>Creighton Twp./O | 1997 | •• | •• | Nickel-copper ore | On temporary suspension. |
| | Little Stobie mine,<br>Blezard Twp./U | •• | nil | •• | Nickel-copper ore | Closed in 1999. |
| | McCreedy East mine,<br>Levack Twp./U | 1996 | 2 800 | •• | Nickel-copper ore | |
| | McCreedy West mine,<br>Levack Twp./U | •• | nil | •• | Nickel-copper ore | Closed in 1999. |
| | Shebandowan mine,<br>Hagey Twp./U | •• | •• | •• | Nickel-copper ore | Ceased production in April 1998. |
| | WD 16,<br>Wisner Twp./O | •• | •• | •• | Nickel-copper ore | On temporary suspension. |
| | Whistle mine,<br>Norman Twp./O | 1994 | •• | •• | Nickel-copper ore | Ceased production in October 1997. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Inmet Mining Corporation**<br>Suite 3400, Aetna Tower<br>79 Wellington Street West<br>P.O. Box 19, Station Toronto-Dom.<br>Toronto, Ontario<br>M5K 1A1<br>Contact: Mr. G.S. Wells<br>Telephone: (819) 764-6666, ext. 223<br>Facsimile: (819) 764-6404 | Winston Lake mine/mill, 20 km NW of Schreiber/U | 1988 | 1 000 | Flotation | Zinc conc., copper conc. | Mine closed in the first quarter of 1999. Reclamation in progress. |
| **Kinross Gold Corporation**<br>P.O. Bag 1000<br>Schumacher, Ontario<br>P0N 1G0<br>Contact: Mr. Don MacKinnon<br>Telephone: (705) 235-6406<br>Facsimile: (705) 235-6424 | Bell Creek mine/mill, Timmins/U | 1987 | 1 400 | C.I.P. | Gold | Mill expanded in 1996 to 1400 t/d. |
| | Hoyle Pond mine/U | " | " | " | Gold ore | 165 000 oz of gold were produced in 1998. Gold ore is processed at the Bell Creek mill. |
| | Lake Shore Tailings Project, Teck Twp./U | 1988 | 1 200 | Cyanidation, C.I.P. | Gold | Tailings recovery project. |
| | Macassa mine, Teck Twp./U | 1933 | 600 | Cyanidation, C.I.P. | Gold, silver | 78 000 oz of gold were produced in 1998. |
| **Lac des Îles Mines Ltd.**<br>P.O. Box 3386<br>Thunder Bay, Ontario<br>P7B 5J9<br>Contact: Mr. Keith Minty<br>Telephone: (807) 624-0960<br>Facsimile: (807) 624-0961 | Lac-des-Îles mine, 90 km N of Thunder Bay/O | December 1993 | 2 700 | Flotation | Palladium conc., platinum, gold, copper, nickel | Presently conducting a feasibility study to determine the feasibility of increasing production from present milling capacity to a 9000-t/d operation. |
| **Patricia Mines Inc.**<br>Suite 405<br>100 Adelaide Street West<br>Toronto, Ontario<br>M5H 1S3<br>Contact: Mr. Richard Sutcliffe<br>Telephone: (416) 214-4900<br>Facsimile: (416) 864-0620 | Island Gold Project (former Goudreau Kremzar mine)/U | 1988 | 550 | Cyanidation, C.I.P. extraction | Gold | Patricia Mines Inc. purchased the Island Gold Project from Canada Tungsten Inc. on April 1, 1996. Placed on care and maintenance in October 1990. Additional surface exploration and diamond drilling in 1998. |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ONTARIO (cont'd)** | | | | | | |
| **Placer Dome North America**<br>600 - 1055 Dunsmuir Street<br>P.O. Box 49335<br>Station Bentall Centre<br>Vancouver, British Columbia<br>V7X 1L3<br>Contact: Mr. Joe O'Rourke<br>(Campbell mine)<br>Telephone: (807) 735-2075<br>Facsimile: (807) 735-2765<br>Contact: Mr. Keith Boyle<br>(Detour Lake mine)<br>Telephone: (705) 245-3211<br>Facsimile: (705) 245-3229<br>Contact: Mr. Keith Boyle<br>(Dome mine)<br>Telephone: (705) 235-6540<br>Facsimile: (705) 235-6551<br>Contact: Mr. Sam Coetzer<br>(Musselwhite mine)<br>Telephone: (807) 532-2160, ext. 2235<br>Facsimile: (807) 532-2021 | Campbell mine, Balmertown, Red Lake Twp./U | 1949 | 1 455 | Crushing, grinding, jigging, tabling, flotation, pressure oxidation, cyanidation, C.I.P., precipitation | Gold bullion | $35 million flotation circuit completed in June 1997. $70 million depth development project started in 1995. Completion in 1999. |
| | Detour Lake mine, Timmins/U | 1983 | 3 500 | Crushing, grinding, leaching, C.I.L., stripping, electrowinning | Gold dore bars | Mine closure in July 1999. Underground ore reserves exhausted. |
| | Dome mine, Tisdale Twp., South Porcupine/U, O | 1910 | 11 800 | Crushing, grinding, leaching, C.I.P., stripping, electrowinning | Gold bullion | Mill capacity increased in 1995; $150 million expansion, including open pit, mill, shops and office complex, completed in 1996. |
| | Musselwhite mine, 200 km N of Pickle Lake/O, U | April 1997 | 3 300 | C.I.P. | Gold bullion | Highly mechanized mine in remote location producing 3300 t/d at an average grade of 5.3 g/t. |
| **River Gold Mines Ltd.**<br>Commerce Court North<br>25 King St. West, Suite 2800<br>P.O. Box 368<br>Toronto, Ontario<br>M5L 1G2<br>(Main office)<br>Telephone: (705) 856-2718<br>Facsimile: (705) 856-7173<br>(Mine)<br>Telephone: (705) 856-2721<br>Facsimile: (705) 856-2986 | Eagle River mine, Wawa/U | November 1995 | 900 | Cyanidation | Gold | $1.4 million mill expansion completed in June 1999. Western Quebec Mines Inc. holds 41% of the shares. |
| | Edwards mine, Wawa/U | 1997 | 50 000 t/y | | Gold | Ships ore to Eagle River mill. Edwards mine is operated under a lease agreement with VenCan Gold Corporation. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Royal Oak Mines Inc.**<br>Timmins Division<br>P.O. Box 2010<br>Timmins, Ontario<br>P4N 7X7<br>Contact: Mr. Paul Bédard<br>Telephone: (705) 235-3311<br>Facsimile: (705) 235-2086 | Matachewan, Powell Twp. | • • | • • | • • | Gold | Operations were suspended in December 1981. On standby. Presently undergoing preproduction feasibility study. |
| | Nighthawk Lake mine,<br>Cody and MacKlem Twps./U | 1996 | • • | • • | Gold | Production started in April 1996 (1000 t/d). Ore is processed at the Pamour mill. |
| | Pamour No. 1 mine,<br>Whitney Twp./U | 1936 | 4 000 | Flotation, cyanidation | Gold bullion | Mill processes ore from the No. 1 mine, No. 3 pit and Nighthawk Lake mine. |
| | Pamour No. 3 Pit,<br>Whitney Twp./O | 1976 | • • | • • | Gold | Production started in 1976. Presently at 1500 t/d. Ore is processed at the Pamour mill. |
| **St. Andrew Goldfields Ltd.**<br>166 Pearl Street<br>Toronto, Ontario<br>M5H 1L3<br>Contact: Mr. Mark Waychison<br>Telephone: (416) 597-0969<br>Facsimile: (416) 597-1776 | Hislop,<br>30 km E of Stock property,<br>Hislop Twp./O | July 1999 | • • | • • | Gold | Mining restarted in July 1999. |
| | Stock mine and mill, E of Timmins, Stock Twp. | October 1989 | 1 300 | Cyanidation | Gold | Plans to resume production before end of 1999. Stock mill does custom milling and processing of ore from Hislop open-pit mine. |
| **Teck-Corona Operating Corporation**<br>Postal Bag 11<br>Marathon, Ontario<br>P0T 2E0<br>Contact: Mr. Stewart Brown<br>Telephone: (807) 238-1717<br>Facsimile: (807) 238-1019 | David Bell mine,<br>Hemlo/U | 1985 | 1 250 | C.I.P. | Gold | Ore is processed at the Williams Operating Corporation mill, located 2 km west of the David Bell mine site as of June 15, 1999. |
| **Timminco Limited**<br>10 Bay Street, 9th Floor<br>Toronto, Ontario<br>M5J 2R8<br>Telephone: (613) 432-3621 | Haley Station/O | 1942 | 7 000 t/y magnesium,<br>900 t/y calcium | Calcining, reduction, refining, melting, casting, extruding | Magnesium, calcium, strontium | Dolomite is mined in an open pit and calcined in a rotary kiln. Magnesium is thermally reduced from calcined dolomite using ferrosilicon as a reducing agent. Reaction is carried out in retorts evacuated to very low pressure. Retorts are heated by natural gas. Condensate is melted and cast into ingots. The magnesium produced is very pure, nominally 99.95%. Calcium and strontium are produced by a similar process from purchased raw material. |
| | Westmeath | 1987 | 500 t/y strontium | | | |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ONTARIO (cont'd)** | | | | | | |
| **Williams Operating Corporation**<br>P.O. Box 500<br>Marathon, Ontario<br>P0T 2E0<br>Contact: Mr. Brian LeBlanc<br>Telephone: (807) 238-1100<br>Facsimile: (807) 238-1499 | Williams mine, Hemlo, approximately 35 km east of Marathon | December 1985 | 6 800 | Cyanidation, C.I.P. | Gold bullion | Small amount of silver by-product. Gold bullion dore bars are shipped to the Royal Canadian Mint in Ottawa for refining. |
| **MANITOBA** | | | | | | |
| **Black Hawk Mining Inc.**<br>P.O. Box 2000<br>Lynn Lake, Manitoba<br>R0B 0W0<br>Contact: Mr. James Armstrong<br>Telephone: (204) 356-2461, ext. 30<br>Facsimile: (204) 356-8372 | Keystone Gold mine, Farley Lake/O | 1996 | | | Gold | Production from the Keystone open-pit mine began in June 1996. Ore is processed at the Lynn Lake mill. |
| | Mill, Lynn Lake | 1986 | 1450 | C.I.P. | Gold | |
| **Harmony Gold Mining Company Limited**<br>**Bissett Gold Mine**<br>P. O. Box 1000<br>Bissett, Manitoba<br>R0E 0J0<br>Telephone: (204) 277-5411<br>Facsimile: (204) 277-5552 | Bissett gold mine, Bissett/U | July 1998 | 1 000 | Gravity, flotation, C.I.P. | Gold | Mine producing 700 t/d, expanding to 1000 t/d (70 000 oz/y). |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Hudson Bay Mining and Smelting Co., Limited**<br>P.O. Box 1500<br>Flin Flon, Manitoba<br>R8A 1N9<br>Contact: Mr. Gary Allen<br>Telephone: (204) 687-2366<br>Facsimile: (204) 687-4193 | 777 mine, Flin Flon | 2003 | 450 | | Copper, zinc, gold, silver | Ore will be processed in the Flin Flon concentrator. |
| | Callinan mine/U | 1990 | 1 550 | Flotation | Copper, zinc, gold, silver ore | Ore is treated at the Flin Flon concentrator. |
| | Chisel North mine, Snow Lake | 2000 | 450 | | Zinc | Zinc reserves under development. Ore will be processed in the Snow Lake concentrator. |
| | Flin Flon mill | 1931 | 5 500 | Flotation | Copper conc., zinc conc. | Expansion complete in the second quarter of 1999. |
| | Photo Lake mine, Snow Lake/U | 1995 | • • | • • | Copper, zinc, gold, silver ore | Resources depleted. |
| | Ruttan mine/mill/U | 1973 | 6 300 | Flotation | Copper conc., zinc conc. | Ruttan ore is treated at the Ruttan concentrator. |
| | Snow Lake mill, Snow Lake | 1979 | 3 600 | Flotation | Copper conc., zinc conc. | Snow Lake concentrator mothballed. |
| | Trout Lake mine/U | 1984 | 2 750 | Flotation | Copper, zinc, gold, silver ore | Trout Lake mine and Callinan mine ores are treated at the Flin Flon concentrator. |
| **Inco Limited**<br>Manitoba Division<br>Thompson, Manitoba<br>R8N 1P3<br>Contact: Mr. Dan McSweeney<br>Telephone: (204) 778-2326<br>Facsimile: (204) 778-2975 | Birchtree mine/U | 1964 | 2 300 | Underground mining | Nickel-copper ore | Ships ore to the Thompson mill. |
| | Thompson mill | 1960 | 12 000 | Flotation | Nickel conc., copper conc. | Thompson mill treats ore from all Thompson area mines. |
| | Thompson mine/U | 1960 | 7 500 | Underground mining | Nickel-copper ore | Ore is treated at the Thompson mill. |
| **Pioneer Metals Corporation**<br>1220 - 609 Granville Street<br>P.O. Box 10364<br>LCD Pacific Centre<br>Vancouver, British Columbia<br>V7Y 1G5<br>Contact: Mr. Warren Stanyer<br>Telephone: (604) 669-3383<br>Facsimile: (604) 669-1240 | Puffy Lake mine, Sherridon | 1987 | 1 000 | Flotation, cyanidation | Gold | Operations were suspended in April 1989. Was in process of reactivation during 1994/95. Start-up has been postponed indefinitely. |
| **Tantalum Mining Corporation of Canada Limited (TANCO)**<br>P.O. Box 2000<br>Lac du Bonnet, Manitoba<br>R0E 1A0<br>Contact: Mr. William Ferguson<br>Telephone: (204) 884-2400<br>Facsimile: (204) 884-2211 | Bernic Lake/U | 1969 | 700 | Gravity | Tantalum conc. | Tantalum conc. is shipped to the parent company in the United States for the production of tantalum metal. |
| | | 1984 | 300 | Gravity, flotation | Spodumene conc., amblygonite conc. | Spodumene is shipped to worldwide markets for use in glass and ceramic applications. |
| | | 1997 | 40 | Dry grinding, leach | Cesium formate (oil well drilling liquid) | |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **MANITOBA (cont'd)** | | | | | | |
| **TVX Gold Inc.**<br>New Britannia Mine<br>P.O. Box 451<br>Snow Lake, Manitoba<br>R0B 1M0<br>Contact: Mr. Boyd Timler<br>Telephone: (204) 358-2927<br>Facsimile: (204) 358-2030 | New Britannia mine, 129 km E of Flin Flon/U | 1995 | 1 800 | Cyanidation | Gold | Production started in August 1995. Owned by TVX Gold Inc. (50%) and High River Gold Mines Ltd. (50%). New Britannia was formerly the Nor-Acme mine, which produced between 1949 and 1958. |
| **SASKATCHEWAN** | | | | | | |
| **Cameco Corporation**<br>2121 - 11th Street West<br>Saskatoon, Saskatchewan<br>S7M 1J3<br>Contact: Mr. J. Spross<br>Telephone: (306) 956-6535<br>Facsimile: (306) 956-6312 | Contact Lake/U | 1995 | 700 | C.I.L., C.I.P. | Gold | Operations terminated August 1998. |
| | Key Lake | 1983 | 800 | Acid leach, solvent extraction, ammonia precipitation and drying | Yellowcake | Key Lake Joint Venture (Cameco Corporation, 66.67%; Uranerz Exploration and Mining Limited, 33.33%). Capacity is 14 million lb/y tri-uranium octoxide. |
| | Rabbit Lake | 1975 | 2 000 | Acid leach, solvent extraction, peroxide precipitation and drying | Yellowcake | Rabbit Lake Joint Venture (Cameco Corporation, 66.67%; Uranerz Exploration and Mining Limited, 33.33%). Capacity is 12 million lb/y tri-uranium octoxide. |
| **Claude Resources Inc.**<br>200 - 224 4th Avenue South<br>Saskatoon, Saskatchewan<br>S7K 5M5<br>Contact: Mr. Neil McMillan, President<br>Telephone: (306) 668-7505<br>Facsimile: (306) 668-7500 | Seabee mine, 125 km NE of LaRonge | November 1991 | 700 | Cyanidation, C.I.P | Gold | 60 200 oz of gold produced in 1998. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **COGEMA Resources Inc.**<br>P.O. Box 9204<br>817-825 45th Street West<br>Saskatoon, Saskatchewan<br>S7K 3X5<br>Contact: Mr. Alun Richards<br>Telephone: (306) 343-4637<br>Facsimile: (306) 653-1126 | Cluff Lake/U | 1980 | 6.5 t/d U (900 t/d of ore) | Acid leaching, solvent extraction | Uranium concentrate (ammonium diuranate) | COGEMA Resources Inc. operates the Cluff Lake Project (100% COGEMA Resources Inc.). Uranium concentrates (greater than 70% uranium) are shipped to refinery plants in Canada, the United States, Britain or France for conversion. Cluff Lake mines ore from the Dominique Janine and Dominique Peter underground mines. The ore is processed in a standard circuit using solvent extraction. Operations will be suspended in 2000. |
| | McClean Lake/O | 1999 | 7 t/d U (300 t/d of ore) | Acid leaching, solvent extraction | Uranium concentrate (calcined ammonium diuranate) | COGEMA Resources Inc. operates for McClean Lake Joint Venture (COGEMA Resources Inc., 70%; Denison Mines Limited, 22.5%; OURD (Canada) Co., Ltd., 7.5%). Construction began in March 1995. Production began in mid-1999. The JEB open pit has been mined and converted to a tailings management facility. The Sue open pit has been mined to the ore zone. |
| **Hudson Bay Mining and Smelting Co., Limited**<br>P.O. Box 1500<br>Flin Flon, Manitoba<br>R8A 1N9<br>Contact: Mr. Gary Allen<br>Telephone: (204) 687-2366<br>Facsimile: (204) 687-4193 | Konuto Lake (Denare Beach), Creighton | 1999 | 800 | | Copper, zinc, gold, silver | Ore will be processed in the Flin Flon concentrator. |
| **BRITISH COLUMBIA** | | | | | | |
| **Boliden Westmin (Canada) Limited**<br>Myra Falls Operations<br>P.O. Box 8000<br>Campbell River, British Columbia<br>V9W 5E2<br>Contact: Mr. Geoff Locke<br>E-mail: glocke@boliden-westmin.com<br>Telephone: (250) 287-9271, ext. 283<br>Facsimile: (250) 286-6171 | Myra Falls, Strathcona Provincial Park, Vancouver Island/U | 1966, expanded 1985 | 4 000 | Flotation | Zinc conc., copper conc., gold conc. | Copper conc. and gold conc. are shipped to Japan. Zinc conc. is shipped to South Korea and Japan. |
| **Claimstaker Resources Ltd.**<br>1440 - 1166 Alberni Street<br>Vancouver, British Columbia<br>V6E 3Z3<br>Telephone: (604) 684-6677<br>Facsimile: (604) 684-6678 | Blackdome mine, Clinton | 1998 | 200 | Gravity and flotation recovery | Gold, silver | Closed April 30, 1999, due to the low gold price. |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **BRITISH COLUMBIA (cont'd)** | | | | | | |
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Sullivan mine, Kimberley/U | 1922 | 8 400 | Flotation, sink-float | Zinc conc., lead conc. | Conc. is shipped to the company's smelter at Trail; conc. contains some silver, antimony, cadmium, bismuth, tin, indium and copper. |
| **Cusac Gold Mines Ltd.**<br>Suite 908<br>700 West Pender Street<br>Vancouver, British Columbia<br>V6C 1G8<br>Contact: Mr. David Brett<br>Telephone: (604) 682-2421<br>Facsimile: (604) 682-7576 | Table Mountain mine, Cassiar/U | 1980 | 300 | Gravity, flotation | Gold, silver | On care and maintenance. |
| **Gibraltar Mines Limited**<br>(a subsidiary of Taseko Mines Limited)<br>P.O. Box 130<br>McLeese Lake, British Columbia<br>V0L 1P0<br>Contact: Mr. John Hutchings, Mine Manager<br>Telephone: (250) 297-6211, ext. 364<br>Facsimile: (250) 297-6548 | McLeese Lake/O | 1972 | 36 300 | Flotation | Copper conc., molybdenum conc. | Presently shut down. Tentative plans are to restart in 2000. Mining to commence in Stage III Pollyanna pit. Approximately 12 years of reserves remain. Additional zones to be explored in 2000. |
| **Highland Valley Copper**<br>P.O. Box 1500<br>Logan Lake, British Columbia<br>V0K 1W0<br>Contact: Mr. T.D. Marsten<br>Telephone: (250) 523-3226<br>Facsimile: (250) 523-3290 | Highland Valley/O | 1986 | 125 000 | Flotation | Copper conc., molybdenum conc. | The operation was shut down from May 15 to August 31, 1999. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Homestake Canada Inc.**<br>P.O. Box 11115<br>1100 - 1055 West Georgia Street<br>Vancouver, British Columbia<br>V6E 3P3<br>Contact: Mr. Martin Waffom<br>Telephone: (604) 684-2345<br>Facsimile: (604) 684-9831 | Eskay Creek mine/U | 1995 | 300 | Crushing only | Gold, silver | Ore is crushed to minus 2 inches at the site; shipped direct to smelters in Japan, Quebec and other areas. |
| | Nickel Plate mine,<br>Hedley/O | 1987 | 3 267 | Cyanidation/<br>Merrill-Crowe circuit | Gold, silver | Nickel Plate mine closed in 1996. It is presently in a reclamation phase. |
| | Snip mine,<br>Stewart/U | 1991 | 450 | Gravity, flotation circuit | Gold, silver | Snip mine was shut down on May 31, 1999, as ore reserves were exhausted. The mine will now enter the reclamation phase. Dore bars are shipped to the Royal Canadian Mint in Ottawa. Flotation concentrate is shipped to a smelter in Japan. On December 3, 1998, Homestake Canada Inc. acquired all of the remaining shares of Prime Resources Group Inc. and now owns 100% of Eskay Creek and Snip. |
| **Huckleberry Mines Ltd.**<br>420 - 355 Burrard Street<br>Vancouver, British Columbia<br>V6C 2G8<br>Contact: Mr. André Deepwell<br>Telephone: (604) 669-8959<br>Facsimile: (604) 687-4030 | Huckleberry,<br>80 km S of Houston/O | 1997 | 18 000 | Flotation | Copper conc., gold, silver, molybdenum conc. | Copper conc. containing gold and silver is being shipped to Japan. |
| **Imperial Metals Corporation**<br>P.O. Box 12<br>Likely, British Columbia<br>V0L 1N0<br>Telephone: (250) 790-2215<br>Facsimile: (250) 790-2268 | Mount Polley mine,<br>90 km NE of Williams Lake/O | 1997 | 18 000 | | Gold, copper | |
| **Kinross Gold Corporation**<br>QR Mine<br>P.O. Box 4700<br>Quesnel, British Columbia<br>V2J 3J9<br>Contact: Mr. Brian Miller<br>Telephone: (604) 522-3974<br>Facsimile: (250) 747-8319 | QR mine,<br>70 km SE of Quesnel/O | 1995 | 1 250 | Gravity, cyanidation, C.I.P. | Gold | Started production in the spring of 1995. Shut down in May 1998. On care and maintenance. |
| **North American Metals Corp.**<br>1500 - 700 West Pender Street<br>Vancouver, British Columbia<br>V6C 1G8<br>Contact: Mr. Rino Miha<br>Telephone: (250) 236-7110<br>Facsimile: (250) 236-7111 | Golden Bear mine,<br>Atlin Mining District/O | 1990 | 5 000 | Heap leach | Gold, silver | Mill operations were suspended in September 1994 pending development of additional underground reserves. Seasonal heap leach operation since 1997. |

## METAL MINES AND PROCESSING PLANTS BY PROVINCE AND TERRITORY (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **BRITISH COLUMBIA (cont'd)** | | | | | | |
| **Royal Oak Mines Inc.**<br>Kemess Mine<br>P.O. Box 3519<br>Smithers, British Columbia<br>V0J 2N0<br>Telephone: (604) 524-5324<br>Facsimile: (604) 523-2118 | Kemess mine, north-central British Columbia/O | 1998 | 49 000 | * * | Gold, copper | |
| **Thompson Creek Mining Limited**<br>P.O. Box 4001<br>Fraser Lake, British Columbia<br>V0J 1S0<br>Contact: Mr. Gord Coyle<br>Telephone: (250) 699-6211, ext. 386<br>Facsimile: (250) 699-7775 | Endako/O | 1965 | 27 000 | Flotation | Molybdenite conc., molybdic oxide | 92% of molybdenite conc. is roasted to produce molybdic oxide for use in steel production; 8% of molybdenite is refined to lubricant grade for use in greases, oils and batteries. Surplus roasting capacity continues to be used for custom roasting. |
| **YUKON TERRITORY** | | | | | | |
| **United Keno Hill Mines Limited**<br>350 Bay Street, 6th Floor<br>Toronto, Ontario<br>M5H 2S6<br>Contact: Mr. Stephen Powell<br>Telephone: (416) 360-5333<br>Facsimile: (416) 360-4419 | Elsa/O, U | 1947 | 600 | Flotation | Silver-lead-zinc conc. | On care and maintenance. Bellekeno and Silver King mines are scheduled to re-open in 1999. |
| **Viceroy Resource Corporation**<br>Suite 2200<br>1066 Hastings Street West<br>Vancouver, British Columbia<br>V6E 3X2<br>Telephone: (604) 688-9760<br>Facsimile: (604) 682-3941 | Brewery Creek mine, Dawson Creek/O | 1997 | 6 850 | Heap leaching | Gold | Achieved full commercial production on May 1, 1997. |

## NORTHWEST TERRITORIES

| | | | | | | |
|---|---|---|---|---|---|---|
| **Breakwater Resources Ltd.**<br>Suite 2000<br>95 Wellington Street West<br>Toronto, Ontario<br>M5J 2N7<br>Telephone: (416) 363-4798<br>Facsimile: (416) 363-1315 | Nanisivik,<br>Baffin Island/U | 1976 | 2 000 | Flotation | Zinc conc. (primary product) and lead conc.. | Zinc and lead concentrates are shipped to Europe. Zinc concentrate contains silver. |
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Polaris mine,<br>Little Cornwallis Island/U | 1981 | 2 850 | Flotation | Lead conc., lead and zinc conc. | Zinc concentrate is shipped to Europe. |
| **Con Exploration Ltd.**<br>Miramar Mining Corporation<br>P.O. Box 2000<br>Yellowknife, Northwest Territories<br>X1A 2M1<br>Contact: Mr. Ted Ruthergien<br>Telephone: (867) 873-2783<br>Facsimile: (867) 920-7068 | Miramar Con mine,<br>Yellowknife/U | 1938 | 750 | Cyanidation | Gold bullion | Acquired NERCO Con Mine Ltd. from NERCO Minerals Company in October 1993. Con mine was renamed the Miramar Con mine. Ore from the Miramar Con mine is treated in the Con mill; gold bullion bars are shipped to the Royal Canadian Mint in Ottawa, Ontario, for refining. The Rycon mine was purchased outright in 1990 and is now part of the Miramar Con mine. |
| **Echo Bay Mines Ltd.**<br>Suite 1000<br>6400 South Fiddlers Green Circle<br>Englewood, CO 80111<br>U.S.A.<br>Contact: Mr. Bill Danyluk<br>Telephone: (780) 496-9708<br>Facsimile: (780) 424-7378 | Lupin mine,<br>Contwoyto Lake/U | 1982 | 2 300 | Cyanidation | Gold bullion | Operations at the Lupin mine were suspended as of January 1998. Restart of this mine will require an improvement in gold prices. |
| **Royal Oak Mines Inc.**<br>Northwest Territories Division<br>P.O. Box 3000<br>Yellowknife, Northwest Territories<br>X1A 2M2<br>Contact: Mr. John Stard<br>Telephone: (867) 669-3700<br>Facsimile: (867) 873-2980 | Colomac mine, Northwest Territories | 1990 | 10 000 | C.I.P. | Gold bullion | Mine closed in December 1997. |
| | Giant mine,<br>Yellowknife/U | 1948 | 1 200 | Flotation, roasting, cyanidation | Gold bullion | Gold bullion dore bars are shipped to Johnson Matthey Limited at Brampton, Ontario, for refining. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **NEWFOUNDLAND AND LABRADOR** | | | | | | |
| **Atlantic Minerals Limited**<br>P.O. Box 160<br>Corner Brook, Newfoundland<br>A2H 6C7<br>Contact: Mr. David Stonehouse<br>Telephone: (709) 634-8251<br>Facsimile: (709) 634-1585 | Lower Cove/O | 1996 | 1.5 Mt/y | Crushing, screening, washing | High-calcium limestone, dolomite, limestone aggregates | Formerly owned by The Newfoundland Resources & Mining Company Limited, which ceased operations in 1995. |
| **Galen Gypsum Mines Limited**<br>143 Main Street<br>Stephenville, Newfoundland<br>A2N 1J4<br>Contact: Ms. Val Parsons<br>Telephone: (709) 643-5552<br>Facsimile: (709) 643-2900 | Flat Bay, St. George's/O | 1995 | 1 500 (estimate) | Crushing | Gypsum | Formerly owned by Domtar Inc., which ceased production at Flat Bay in September 1994. Reactivated for production in October 1995. There was no activity in 1998, and no activity is expected in 1999. |
| **Lafarge Gypsum Canada Inc.**<br>P.O. Box 700<br>Corner Brook, Newfoundland<br>A2H 6J7<br>Telephone: (709) 634-6667 | Corner Brook | 1952 | 200 | Crushing, calcining | Gypsum, plaster, wallboard | Gypsum purchased from Atlantic Gypsum Resources, Inc. mine at Fischells, Newfoundland, is used in the manufacture of wallboard and plaster. |
| **Midatlantic Minerals Inc.**<br>200 - 86 rue St. Anne<br>Sainte-Anne-de Bellevue, Quebec<br>H9X 1L8<br>Contact: Mr. Jose Boves<br>Telephone: (514) 457-4321<br>Facsimile: (514) 457-4147 | Aguathuna | 1998 | | | Dolomite, limestone | |
| **North Atlantic Refinery Limited**<br>P.O. Box 40<br>Come-By-Chance, Newfoundland<br>A0B 1N0<br>Telephone: (709) 463-3407<br>Facsimile: (709) 463-8076 | Come-By-Chance | 1995 | 200 | Oil refining | Recovered sulphur | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **North Star Cement Limited**<br>P.O. Box 160<br>Corner Brook, Newfoundland<br>A2H 6C7<br>Contact: Mr. David Stonehouse<br>Telephone: (709) 634-8251<br>Facsimile: (709) 634-1585 | Corner Brook/O | 1952, expanded 1966, modernized 1986 | 160 000 t/y | Dry process | Cement | |
| **Trinity Resources & Energy Ltd.**<br>Newfoundland Pyrophyllite Division<br>P.O. Box 160<br>Manuels, Newfoundland<br>A1W 1M8<br>Contact: Mr. Maxwell Dawe<br>Telephone: (709) 834-2186<br>Facsimile: (709) 834-8856 | Long Pond, Manuels/O | 1956 | 1 000 | Crushing | Pyrophyllite | On extended layoff. |
| **United Bolero Development Corporation**<br>P.O. Box 128<br>Buchans, Newfoundland<br>A0H 1G0<br>Contact: Mr. Paul O'Brien<br>Telephone: (709) 672-3871<br>Facsimile: (709) 672-3871 | Buchans | 1998 | | | Barite | |

## NOVA SCOTIA

| | | | | | | |
|---|---|---|---|---|---|---|
| **Antigonish Limestone**<br>c/o Ridge Brokers Ltd.<br>P.O. Box 175<br>Havelock, New Brunswick<br>E0A 1W0<br>Contact: Mr. Eric Alward<br>Telephone: (506) 534-2241<br>Facsimile: (506) 534-8263 | Antigonish | • • | • • | Crushing, screening | High-calcium limestone | Pulp and paper, hydro plants and agriculture. |
| **Canadian Salt Company Limited, The**<br>Suite 700<br>755 St-Jean Boulevard<br>Pointe-Claire, Quebec<br>H9R 5M9<br>Contact: Mr. Alan Davidson<br>Telephone: (902) 243-2511<br>Facsimile: (902) 243-2667 | Pugwash/S | 1963 | 310 | Vacuum pan evaporation | Evaporated salt | Brine made from mined rock salt used to produce fine evaporated salt. |
| | Pugwash/U | 1959 | 4 000 | Crushing, screening | Rock salt | |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **NOVA SCOTIA (cont'd)** | | | | | | |
| **E-Z-EM Canada Inc.**<br>Nystone Division<br>Debert Industrial Park<br>P.O. Box 69<br>Debert, Nova Scotia<br>B0M 1G0<br>Contact: Mr. V.J. Prostak<br>Telephone: (902) 662-3250<br>Facsimile: (902) 662-3235 | Mine - Brookfield,<br>Plant - Debert | 1980 | 100 - feed<br>15 - product | Beneficiation, fine grinding | Barium sulphate | High-purity barium sulphate is produced from Brookfield ore by wet tabling, magnetic separation, acid washing, fine grinding and drying. |
| **Fundy Gypsum Company**<br>P.O. Box 400<br>Windsor, Nova Scotia<br>B0N 2T0<br>Contact: Mr. K.R. Hillman<br>Telephone: (902) 798-4689<br>Facsimile: (902) 798-5639 | Milller's Creek/O | 1957 | 5 000 t/8-hr shift | Crushing | Gypsum | Crude gypsum is shipped to the United States. |
| | Wentworth/O | 1924 | 2 000 t/8-hr shift | Crushing, heavy media separation | Gypsum, anhydrite | Gypsum and anhydrite are shipped to the United States and Canada. Shiploading operation for gypsum rocks at Hantsport. |
| **Georgia-Pacific Canada, Inc.**<br>P.O. Box 400<br>Port Hawkesbury, Nova Scotia<br>B0E 2V0<br>Contact: Mr. Bob Fraser<br>Telephone: (902) 625-9550<br>Facsimile: (902) 625-1223 | Sugar Camp/O | 1987 | 6 000 | Crushing | Gypsum | Crude gypsum is shipped to the United States. |
| **Imperial Oil Limited**<br>111 St. Clair Avenue West<br>Toronto, Ontario<br>M5W 2J8<br>Telephone: (416) 968-4111 | Dartmouth | 1968 | 90 | Oil refining | Recovered sulphur | |
| **Lafarge Canada Inc.**<br>c/o Lafarge Corporation<br>300-11130 Sunrise Valley Drive<br>Reston, VA 20195-1415<br>U.S.A.<br>Contact: Ms. Danielle Benoit<br>Telephone: (514) 738-1202<br>Facsimile: (514) 738-1124 | Brookfield/O | 1964, expanded 1978 | 605 000 t/y | Wet process | Cement | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Little Narrows Gypsum Company**<br>(a division of USG Canadian Mining Ltd.)<br>R.R. 1<br>Little Narrows, Nova Scotia<br>B0E 1T0<br>Contact: Mr. Bruce Allen<br>Telephone: (902) 756-2080<br>Facsimile: (902) 756-2493 | Little Narrows/O | 1934 | 4 500 t/8-hr shift | Crushing and screening | Gypsum, anhydrite | Sized crude gypsum and anhydrite are shipped to markets in Quebec and Ontario, and also exported to the United States and Europe. |
| **Mosher Limestone Company Limited**<br>P.O. Box 28<br>Upper Musquodoboit, Nova Scotia<br>B0N 2M0<br>Telephone: (902) 568-2654<br>Facsimile: (902) 568-2983 | New Campbellton/O<br>Upper Musquodoboit/O | 1945 | 800 | Crushing, grinding | Limestone, gravel, gypsum | |
| **National Gypsum (Canada) Ltd.**<br>P.O. Box 57<br>Milford Station, Nova Scotia<br>B0N 1Y0<br>Contact: Mr. P.C. Mills<br>Telephone: (902) 758-3256<br>Facsimile: (902) 758-3955 | Milford Station/O | 1955 | 7 500 t/8-hr shift | Crushing, screening | Gypsum | Crude gypsum is shipped to Canadian and U.S. markets. |
| **Shaw Resources**<br>(a Member of the Shaw Group Limited)<br>P.O. Box 60<br>Hants County<br>Shubenacadie, Nova Scotia<br>B0N 2H0<br>Contact: Mr. Gordon Dickie<br>Telephone: (902) 758-2095 | Shubenacadie/O | 1954 | 1 000 wash, 1 000 dry, 130 magnetic separation | Washing, drying, sizing, magnetic separation | Silica sands (98.5-99.5% silicon dioxide) | Markets full range of bulk and packaged silica sand products throughout Atlantic Canada. |
| **Sifto Canada Inc.**<br>5430 Timberlea Boulevard<br>Mississauga, Ontario<br>L4W 2T7<br>Contact: Mr. Gary Noseworthy<br>Telephone: (905) 629-7083, ext. 300<br>Facsimile: (905) 629-8911 | Amherst, Nappan/S | 1947 | 280 | Evaporation using vapour recompression process | Evaporated salt | Fine salt production. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **NOVA SCOTIA (cont'd)** | | | | | | |
| **USG Corporation**<br>P.O. Box 2102<br>MacLean Street - Point Tupper<br>Port Hawkesbury, Nova Scotia<br>B0E 2V0<br>Contact: Mr. Lloyd George, Plant Manager<br>Telephone: (902) 625-3070<br>Facsimile: (902) 625-3347 | Port Hawkesbury | 1990 | 10 million square metres/y | Crushing, calcining, blending | FibeRock Fiber Gypsum wallboard and underlayment | Plant using cellulose fibre, gypsum and perlite. |
| **NEW BRUNSWICK** | | | | | | |
| **Atlantic Silica Inc.**<br>266 Hillsborough Road<br>Riverview, New Brunswick<br>E1B 4G7<br>Contact: Mr. B. Pickett<br>Telephone: (506) 387-4648<br>Facsimile: (506) 387-3080 | Cassidy Lake, near Sussex/O | 1966 | 1 000 | Washing, crushing, drying, screening, bagging | Sandblast sand, nursery grit, decoration sand, filter media, golf bunker sand, foundry sand | Mined from a granular deposit; particle sizes range up to 50 mm. |
| **CGC Inc.**<br>Site 1, Box 1, R.R. 1<br>Belledune, New Brunswick<br>E0B 1G0<br>Telephone: (506) 522-0820 | Belledune | 1995 | 1 000 | Drying, briquetting synthetic gypsum | Processed synthetic gypsum | The synthetic gypsum derived from the desulphurization of stack gases at the New Brunswick Power Corporation plants in Belledune and Dalhousie is dried and agglomerated at this CGC Inc. site for transport to wallboard plants in the United States and Canada. |
| **Irving Oil Limited**<br>P.O. Box 1260<br>Saint John, New Brunswick<br>E2L 4H6<br>Contact: Mr. Michael Hanrahan<br>Telephone: (506) 633-3000<br>Facsimile: (506) 633-4002 | Saint John | 1976 | 200 | Oil refining | Recovered sulphur | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Potash Corporation of Saskatchewan Inc.**<br>Cassidy Lake Division<br>P.O. Box 5005<br>Sussex, New Brunswick<br>E4E 5L1<br>Telephone: (506) 839-2146<br>Facsimile: (506) 839-2808 | Cassidy Lake/S | Restarted mill only in April 1998 | 400 000 t/y | Compaction, screening | Potash | Potash Corporation of Saskatchewan Inc. purchased the mine site from the Potacan Mining Company in 1998. Granular-grade potash is produced by compacting standard grade received from other mines. |
| **Potash Corporation of Saskatchewan Inc.**<br>New Brunswick Division<br>P.O. Box 1489<br>Sussex, New Brunswick<br>E0E 1P0<br>Contact: Mr. Brian Roulston<br>Telephone: (506) 433-5445<br>Facsimile: (506) 433-6617 | Sussex/U | 1983 | 770 000 t/y KCl,<br>700 000 t/y salt | Crushing, flotation | Potash and salt | Three grades of muriate of potash (KCl) are produced from a flotation circuit and from a crystallizer circuit. |
| **Shaw Resources**<br>Chaleur Silica Operation<br>(member of the Shaw Group Limited)<br>P.O. Box 60<br>Shubenacadie, Nova Scotia<br>B0N 2H0<br>Contact: Mr. Glenn Hardie<br>Telephone: (902) 758-2095<br>Facsimile: (902) 758-3622 | Petit Rocher | 1976 | 100 000 t/y | Crushing | Silica | The portable crushing plant processes silica flux for a local smelting operation. |
| **Westroc Inc.**<br>Quality Way<br>McAdam, New Brunswick<br>E0H 1K0<br>Contact: Mr. Ivan Charvat<br>Telephone: (905) 823-9881<br>Facsimile: (905) 823-4464 | McAdam plant | 1990 | 800 | Crushing, calcining | Wallboard | Crude gypsum obtained from Nova Scotia. |

## QUEBEC

| | | | | | | |
|---|---|---|---|---|---|---|
| **Baskatong Quartz Inc.**<br>P.O. Box 337, Station N.D.G.<br>Montréal, Quebec<br>H4A 3P6<br>E-mail: baskatong@aol.com<br>Telephone: (514) 482-6357<br>Facsimile: (514) 487-9206 | Petit Lac Malbaie, Charlevoix County/O | 1975 | 1 500 | Crushing, sizing | Quartz | Product sold for the manufacture of silicon metal and also used in the production of ferrosilicon. |
| | Sainte-Edwidge-de-Clifton, Clifton County | 1993 | 1 000 | Crushing, sizing | Quartz | Product sold for the manufacture of silicon metal. Depleted in 1999. |
| | Saint-Ludger, Risborough County | 1995 | 1 000 | Crushing, sizing | Quartz | Closed. Depleted in 1998. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **QUEBEC (cont'd)** | | | (tonnes/day) | | | |
| **Canadian Salt Company Limited, The**<br>Seleine Mines Division<br>Suite 700<br>755 St-Jean Boulevard<br>Pointe-Claire, Quebec<br>H9R 5M9<br>Contact: Mr. Mark Joncas<br>Telephone: (418) 985-2931<br>Facsimile: (418) 985-2125 | Magdalen Islands | 1982 | 5 000 | Crushing and screening, dry processing | Rock salt | |
| **CGC Inc.**<br>P.O. Box 4034, Terminal "A"<br>Toronto, Ontario<br>M5W 1K8<br>Contact: Mr. R.J. Webber<br>Telephone: (905) 803-5665<br>Facsimile: (905) 803-5637 | Montréal | 1954 | 800 | Grinding, calcining | Wallboard, ready-mix compounds | One quarter of the plant's gypsum supply is from synthetic gypsum produced by Kronos Canada, Inc. at Varennes, Quebec. The remainder is synthetic gypsum from New Brunswick Power Corporation at Belledune, New Brunswick. |
| **Ciment Québec Inc.**<br>145 Centenaire Street<br>Saint-Basile-de-Portneuf, Quebec<br>G0A 3G0<br>Contact: Mr. Luc Papillon<br>Telephone: (418) 329-2100<br>Facsimile: (418) 329-3436 | Saint-Basile-de-Portneuf/O | 1951 | 760 000 t/y | Dry process | Cement | |
| **Ciment St. Laurent (Indépendant) Inc.**<br>966 Des Prairies Road<br>P.O. Box 480<br>Joliette, Quebec<br>J6E 6H7<br>Contact: Mr. Benoit Provencher<br>Telephone: (514) 756-1076<br>Facsimile: (514) 756-4366 | Joliette/O | 1966 | 1 075 000 t/y | Dry process | Cement | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Good Sand Company Ltd.**<br>3388 Oka Street<br>Saint-Joseph-du-Lac, Quebec<br>J0N 1M0<br>Contact: Mr. Henri Rybicki<br>Telephone: (450) 473-3600<br>Facsimile: (450) 473-5780 | Dumas Twp.,<br>Ormstown/O | 1977 | 600 | Washing, drying, screening | Silica sand | Silica sand to foundries for fibreglass, window glass, sandblasting, and also to serve as fill. |
| **Grantech Inc.**<br>(a division of Ensio Industries Inc.)<br>Suite 201<br>1079 Chambly Street<br>Longueuil, Quebec<br>J4H 3M7<br>Telephone: (450) 677-6333 | Contrecoeur plant | 1979 | 800 | Drying, crushing, sizing, blending, classifying | Blast grit products (sandblasting), roofing granules and shingles | |
| **J.M. Asbestos Inc.**<br>111 St. Luke Boulevard<br>P.O. Box 1500<br>Asbestos, Quebec<br>J1T 3N2<br>Contact: Mr. Denis Roy<br>Telephone: (819) 879-6004<br>Facsimile: (819) 879-2659 | Jeffrey mine,<br>Asbestos/O | 1882 | 1 200 | Dry milling | Chrysotile asbestos | Fibre extracted from ore by crushing, screening and aspiration; asbestos fibre graded according to length and quality. |
| **Kronos Canada, Inc.**<br>3390 Marie-Victorin Boulevard<br>Varennes, Quebec<br>J3X 1T4<br>Contact: Mr. J.Y. Bourque<br>Telephone: (514) 929-5013<br>Facsimile: (514) 929-5100 | Varennes | 1957 | 19 000 t/y | Sulphate treatment of titanium slag | Titanium dioxide pigments, liquid titanyl | Production of titanium dioxide pigments through the processing of titanium slag by sulphurization. |
| | | 1987 | 60 000 t/y | Processing chloridation | Titanium dioxide pigments, titanium tetra-chloride, 30% hydrochloric acid, ferrous chloride solution | Production of titanium dioxide pigments through the processing of natural rutile ores, titanium slag, and/or upgrade slag. |
| | | 1994 | 70 000 t/y | Limestone neutralization | Synthetic gypsum | Neutralization of sulphuric waste acid with limestone to produce synthetic gypsum. |
| | | 1998 | 20 000 t/y | Limestone neutralization | Carbon dioxide ($CO_2$ gas) | By-product of neutralization process of sulphuric waste acid. |
| **LAB Chrysotile, Inc.**<br>Black Lake, Quebec<br>G6H 2M9<br>Contact: Mr. Michel Labbé<br>Telephone: (418) 338-7500<br>Facsimile: (418) 338-7664 | Bell operations,<br>Thetford Mines/U | 1878 | 6 300 | Dry milling | Chrysotile asbestos | For all operations, fibre is extracted from ore by crushing, screening and aspiration; asbestos fibre is graded according to length and quality. |
| | Black Lake operations,<br>Black Lake/O | 1958 | 18 000 | Dry milling | Chrysotile asbestos | |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **QUEBEC (cont'd)** | | | | | | |
| **Lafarge Canada Inc.**<br>c/o Lafarge Corporation<br>300-11130 Sunrise Valley Drive<br>Reston, VA 20195-1415<br>U.S.A.<br>Contact: Ms. Danielle Benoit<br>Telephone: (514) 738-1202<br>Facsimile: (514) 738-1124 | Saint Constant/O | 1965, expanded 1974 | 1 000 000 t/y | Dry process | Cement | |
| **Luzenac Inc.**<br>Suite 14<br>1075 North Service Road West<br>Oakville, Ontario<br>L6M 2G2<br>Contact: Mr. Robert Pearson<br>Telephone: (905) 825-3944<br>Facsimile: (905) 825-3932 | Marcoux open-pit mine, Potton Twp./O | 1938 | .. | .. | Talc, fillers | The mill closed on May 31,1996, and has been dismantled. The Marcoux mine is on standby. |
| | Mine, stone quarry and plant, Saint-Pierre-de-Broughton/O | 1925 | 50 000 t/y | Open-pit mining, stone cutting, crushing, grinding, micronizing | Steatite (talc) powder and stones | Used in pulp and paper, paint and coating, roofing, ceramic, plastic, rubber, and feedstuff industries. |
| **Orleans Resources Inc.**<br>Route des Passes Dangereuses<br>P.O. Box 60<br>Milot, Quebec<br>G0W 2B0<br>Telephone: (418) 373-2814<br>Facsimile: (418) 373-2363 | Quarry and plant, St. Onge Twp./O | 1997 | 150 | Crushing, dry grinding, flotation, filtering, drying and packaging | Wollastonite concentrate | |
| **Silco Sands Inc.**<br>104 St. Remi Boulevard<br>Saint-Rémi, Quebec<br>J0L 2L0<br>Telephone: (450) 454-5171 | Sainte-Clothilde, Chateauguay County/O | 1979 | 1 500 | Crushing | Silica | Product sold to a chemical company, cement plants and ferromanganese plants. |
| **Stratmin Graphite Inc.**<br>585 Graphite Road<br>Lac-des-Îles, Quebec<br>J0W 1J0<br>Contact: Mr. Antoine Gouze<br>Telephone: (819) 597-2911<br>Facsimile: (819) 597-2410 | Lac-des-Îles mine/mill/O | 1990 | 1 300 | Crushing, grinding, flotation, drying, screening, bagging | Natural flake crystalline graphite | Exported to world markets. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Sulconam Inc.**<br>11450 Cherrier Street<br>Montréal-Est, Quebec<br>H1B 1A6<br>Contact: Mr. Serge Payette<br>Telephone: (514) 645-1636, ext. 230<br>Facsimile: (514) 645-9899 | Montréal-Est | 1956 | 150 | Refining | Recovered sulphur | Feedstock obtained from two nearby petroleum refineries. Sulphur produced by modified Claus process. Plant has pollution control facility. |
| | | | 7 500 (100% base) | | Sodium bisulphite, solution (38% to 42%) | Feedstock obtained from two nearby petroleum refineries. Sulphur produced by modified Claus process. Plant has pollution control facility |
| **Suzorite Mica Products Inc.**<br>1475 Graham Bell Road<br>Boucherville, Quebec<br>J4B 6A1<br>Telephone: (450) 655-2450<br>Facsimile: (450) 655-9942 | Mine - Lac Letondal, Plant - Boucherville/O | 1977 | 100 | Dry grinding, pneumatic separation, screening | Suzorite mica (phlogopite), Suzorex, E-Mica | Dry crushed mica (20 to 325 mesh) used mainly as an additive or as a filler in plastics, as a substitute for asbestos, and in the composition of drilling mud and plaster joint filler. |
| **Syquartz Inc.**<br>3095 Westinghouse Street<br>Trois-Rivières, Quebec<br>G9A 5E1<br>Telephone: (819) 373-2579<br>Facsimile: (819) 373-3221 | Trois-Rivières | 1995 | 50 t/y | hydrothermal synthesis | Synthetic quartz | |
| **Temisca Inc.**<br>P.O. Box 304<br>Saint-Bruno-de-Guigues, Quebec<br>J0Z 2G0<br>Telephone: (819) 728-2450<br>Facsimile: (819) 728-2807 | Saint-Bruno-de-Guigues | | | | Silica | Silica used in silviculture, filtration, sandblasting, foundries, golf course sand, and as traction sand. |
| **Tioxide Canada Inc.**<br>1690 Marie-Victorin Highway<br>Tracy, Quebec<br>J3R 1M7<br>Contact: Ms. Sylvie Marqués<br>Telephone: (514) 746-8211<br>Facsimile: (514) 746-1788 | Tracy | 1962 | 52 000 t/y | Treatment of semi-finished products | Titanium dioxide pigment | |
| **Ultramar Limited**<br>P.O. Box 41055<br>Lévis, Quebec<br>G6W 7N1<br>Telephone: (418) 837-3641 | Saint-Romuald | 1983 | 80 | Oil refining | Recovered sulphur | |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **QUEBEC (cont'd)** | | | | | | |
| **Unimin Canada Ltd.**<br>Quebec Operations<br>P.O. Box 700<br>Saint-Jérôme, Quebec<br>J7Z 5V4<br>Contact: Mr. G.G. Verret<br>Telephone: (514) 438-1238<br>Facsimile: (514) 438-9325 | Saint-Canut/O | 1954 | 1 800 | Crushing, grinding, classifying | Silica | |
| | Saint-Donat-de-Montcalm/O | 1955 | 1 080 | Crushing, grinding, classifying, washing | Silica | Silica shipped from Saint-Donat-de-Montcalm to Saint-Canut for processing into various products. |
| **V.I.L. Vermiculite Inc.**<br>1775 - 52nd Avenue<br>Lachine, Quebec<br>H8T 2Y1<br>Contact: Mr. Peter Lewis<br>Telephone: (514) 631-4251<br>Facsimile: (514) 631-4254 | Lachine | 1994 | 19 | Expanding | Lightweight aggregate (perlite) | Used in agriculture, construction, horticulture and industry. |
| | | 1947 | 85 | Expanding | Lightweight aggregate (vermiculite) | Aggregates used in bulk form as an insulator agent, for horticultural applications, for industrial production of vermiculite, and for fire-resistant products. |
| | | 1998<br>new perlite plant | 36 | Expanding | Lightweight aggregate (perlite) | |
| **Vermi-Lite Inc.**<br>(a subsidiary of Perlite Canada Inc.)<br>55 Grande Plaine Street<br>Baie-du-Fèbvre, Quebec<br>J0G 1A0<br>Contact: Mr. Richard Barabé<br>Telephone: (514) 336-6665<br>Facsimile: (514) 336-6651 | Plant - Baie-du-Fèbvre | 1990 | 30 | Crushing, grinding, classifying, washing, expanding | Lightweight aggregate (perlite) | Aggregates marketed for industrial use in agricultural and horticultural applications, as fire-resistant products, and for acoustic and thermal insulation, filtration, cryoganics, lightweight aggregate construction, and hydroponics. |
| **Westroc Inc.**<br>2424 Lakeshore Road West<br>Mississauga, Ontario<br>L5J 1K4<br>Contact: Mr. Ivan Charvat<br>Telephone: (905) 823-9881<br>Facsimile: (905) 823-4464 | Ville Saint-Catherine | 1973 | 1 000 | Crushing, calcining | Plaster, wallboard | Crude gypsum obtained from Nova Scotia. |

## ONTARIO

| | | | | | | |
|---|---|---|---|---|---|---|
| **3M Canada Inc.**<br>I.M.P. Division<br>R.R. 3<br>Havelock, Ontario<br>K0L 1Z0<br>Contact: Mr. J.G. Hudson<br>Telephone: (705) 778-3341, ext. 11<br>Facsimile: (705) 778-2050 | Havelock/O | 1907 | 160/hr | Crushing, sizing, colouring | Traprock, roofing granules, commercial aggregates and fillers | |
| **Blue Circle Cement**<br>4th Floor<br>55 Industrial Street<br>Toronto, Ontario<br>M4G 3W9<br>Contact: Mr. Bram Vermeulen<br>Telephone: (416) 696-4411<br>Facsimile: (416) 696-4435 | Bowmanville/O | 1968, expanded 1990 | 1 500 000 t/y | Dry process | Cement | |
| | St. Marys/O | 1912, expanded 1977 | 800 000 t/y | Dry process | Cement | |
| **Canadian Salt Company Limited, The**<br>Suite 700<br>755 St-Jean Boulevard<br>Pointe-Claire, Quebec<br>H9R 5M9<br>(Ojibway mine)<br>Telephone: (519) 966-2142<br>Facsimile: (519) 972-1777<br>Contact: Mr. James Vincent<br>(Windsor plant)<br>Telephone: (519) 255-5400<br>Facsimile: (519) 255-1488 | Ojibway/U | 1955 | 8 000 | Crushing, screening | Rock salt | Salt graded and prepared for markets. |
| | Windsor/S | 1892 | 500 | Triple-effect vacuum pan evaporation | Evaporated salt | |
| **CGC Inc.**<br>P.O. Box 4034, Terminal "A"<br>Toronto, Ontario<br>M5W 1K8<br>Contact: Mr. R.J. Webber<br>Telephone: (905) 803-5665<br>Facsimile: (905) 803-5637 | Hagersville/U | 1931 | 2 500 | Crushing, calcining | Gypsum, wallboard, ready-mix compounds | One mine/mill complex. Two wallboard lines. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ONTARIO (cont'd)** | | | | | | |
| **ESSROC Canada Inc.**<br>Italcementi Group<br>P.O. Box 620<br>Picton, Ontario<br>K0K 2T0<br>Contact: Mr. Fabio Rizzi<br>Telephone: (613) 476-3233<br>Facsimile: (613) 476-8130 | Picton/O | 1958 | 900 000 t/y | Dry process | Cement | |
| **Extender Minerals of Canada Limited**<br>3405 American Drive, Unit 3<br>Mississauga, Ontario<br>L4V 1T6<br>Contact: Mr. Robert Hill<br>Telephone: (905) 677-8515<br>Facsimile: (905) 677-5551 | Mill - Matachewan Village, Powell Twp.,<br>Mine - Yarrow Twp.,<br>Mine - Shining Tree/O | 1974 | 20 000 t/y | Crushing, grinding, screening | Barite | Used for various industrial applications such as fillers and extenders in paints, and in plastics, sound barriers, and friction material. |
| **Federal White Cement Ltd.**<br>P.O. Box 548<br>Woodstock, Ontario<br>N4S 7Y5<br>Telephone: (519) 485-5410<br>Facsimile: (519) 485-5892 | Woodstock | | 180 000 t/y | Dry process | Cement | |
| **General Chemical Canada Ltd.**<br>P.O. Box 2000<br>Amherstburg, Ontario<br>N9V 2Z8<br>Telephone: (519) 736-2111<br>Facsimile: (519) 736-8915 | Amherstburg | 1919 | 730 000 t/y | Solutioning | Salt brines | Brining to produce sodium carbonate. |
| **Georgia-Pacific Canada, Inc.**<br>350 Argyle Street North<br>Caledonia, Ontario<br>N3W 1M2<br>Contact: Mr. Rob Melick<br>Telephone: (905) 765-1541<br>Facsimile: (905) 765-1512 | Caledonia/U | 1980 | 1 200 | Crushing, calcining | Gypsum | Used for manufacture of plaster and wallboard at company's plant at Caledonia. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Grace Canada, Inc.**<br>Construction Products Division<br>294 Clements Road West<br>Ajax, Ontario<br>L1S 3C6<br>Contact: Mr. Mark Blackmore<br>Telephone: (905) 686-5346<br>Facsimile: (905) 683-0646 | Ajax | 1973 | 6 000 t/y | Expanding | Lightweight aggregate (vermiculite) | Vermiculite aggregate used for loose insulation, horticultural products, industrial vermiculite and fire-proofing. |
| | | 1978 | 6 000 t/y | Expanding | Perlite aggregate | Perlite aggregate used for cryogenic insulation, plaster aggregate, and horticultural and industrial purposes. |
| | | 1981 | 6 000 t/y | Expanding | Perlite aggregate | |
| **Hadman Resources Limited**<br>106 Fielding Road<br>Lively, Ontario<br>P3Y 1L5<br>Contact: Mr. R.F. Bertrand (Matheson mill)<br>Telephone: (705) 273-2261<br>Facsimile: (705) 273-2668<br>Contact: Mr. Claude Taillefer (Office)<br>Telephone: (705) 682-3203<br>Facsimile: (705) 682-3499 | Mine - Munro and Warden Twps., Plant - Bowman Twp., Matheson, Ont./O | 1969 | 270 | Dry milling, expanding | Lizardite serpentine filler | Used as a high heat-resistant powder filler in many industrial applications such as building products, friction materials, paints, plastics and brakes. |
| **Highwood Resources Ltd.**<br>Canada Talc Division<br>P.O. Box 537<br>Marmora, Ontario<br>K0K 2M0<br>Contact: Mr. Steve Mitchell<br>E-mail: catalc@intranet_ca<br>Telephone: (613) 472-2434<br>Facsimile: (613) 472-5467 | Madoc/O, U | 1896 | 70 (dolomite), 35 (talc) | Crushing, grinding, sizing | Talc, dolomite | Highwood Resources Ltd. purchased Canada Talc Limited in January 1999. High-quality talc suitable as filler material in paint, plastics, fertilizers, building products and paper. The majority of talc mined in Madoc, Ontario, is shipped 20 km to Marmora, Ontario, for processing. |
| | Marmora | 1999 | 100 (barite) | Micronizing | Barite | The barite micronizing system is currently under construction. Start-up is expected in late fall 1999. |
| | Marmora | 1984 | 150 (talc) | Crushing, grinding | Talc, dolomite | The majority of the talc mined in Madoc is shipped to Marmora for processing. |
| **Imperial Oil Limited**<br>Products and Chemicals Division<br>111 St. Clair Avenue West<br>Toronto, Ontario<br>M5W 2J8<br>Telephone: (416) 968-4111 | Nanticoke | 1978 | 85 | Oil refining | Recovered sulphur | Hydrogen sulphide is removed by diethanolamine absorption. Sulphur is produced by the modified Claus process. |
| | Sarnia | 1964-68 | 163 | Oil refining | Recovered sulphur | |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ONTARIO (cont'd)** | | | | | | |
| **Lafarge Canada Inc.**<br>c/o Lafarge Corporation<br>300-11130 Sunrise Valley Drive<br>Reston, VA 20195-1415<br>U.S.A.<br>Contact: Ms. Danielle Benoit<br>Telephone: (514) 738-1202<br>Facsimile: (514) 738-1124 | Bath<br>Woodstock/O | 1970<br>1956 | 1 000 000 t/y<br>605 000 t/y | Dry process<br>Wet process | Cement<br>Cement | |
| **Lafarge Canada Inc.**<br>Hamilton Slag Division<br>139 Windermere Road<br>Hamilton, Ontario<br>L8H 3Y2<br>Contact: Mr. Mike Hesson<br>Telephone: (905) 547-2133, ext. 222<br>Facsimile: (905) 545-3308 | Hamilton | 1954 | 760 cubic metres per day | Pelletizing | Lightweight aggregate (pelletized slag) | Aggregate used in the production of concrete blocks and lightweight ready-mix concrete, and for the manufacture of cementitious hydraulic slag and lightweight fill applications. |
| **Luzenac Inc.**<br>Suite 14<br>1075 North Service Road West<br>Oakville, Ontario<br>L6M 2G2<br>Contact: Mr. Robert Pearson<br>Telephone: (905) 825-3944<br>Facsimile: (905) 825-3932 | Mine - Penhorwood Twp., Plant - Timmins, Mine - 72 km SW of Timmins/O | 1976 | 55 000 t/y | Open-pit mining, crushing, grinding, flotation, drying, micronizing | Talc powder, talc pellets | Used in cosmetics, pulp and paper, paint and coating, roofing, ceramic, plastic, rubber, and feedstuff industries. |
| **Miller Minerals**<br>P.O. Box 248<br>New Liskeard, Ontario<br>P0J 1P0<br>(Administration)<br>Telephone: (750) 647-4390<br>(Plant)<br>Telephone: (705) 672-2282 | Haileybury | | 60 000 t/y | | Metallurgical limestone, agricultural lime and aggregates | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **OMYA (Canada) Inc.**<br>Highway 7 West<br>P.O. Box 245<br>Perth, Ontario<br>K7H 3E4<br>Contact: Mr. Olivier Chatillon<br>Telephone: (613) 267-5367, ext. 223<br>Facsimile: (613) 267-5408 | Perth | 1986, expanded 1998 | ** | Beneficiating, ultra-fine wet grinding plant | Ultra-fine calcite in slurry | Ultra-fine calcite slurries are shipped to Canadian and U.S. paper industries. ISO 9002 certified. Expansion under way for more capacity. |
| | Tatlock/O, Plant - Perth | 1978, expanded 1983, expanded 1998 | ** | Crushing, dry grinding, air classifying | Crushed and pulverized calcite products | Aggregates, screen separator products, and fine/medium-fine products are shipped to Canadian and U.S. markets. Expansion under way. Complete new dry plant is under way. |
| **Petro-Canada**<br>3275 Rebecca Street<br>Oakville, Ontario<br>L6L 6N5<br>Contact: Mr. Mark Stevens<br>Telephone: (905) 804-4870<br>Facsimile: (905) 804-4896 | Mississauga | 1964 | 41 | Oil refining | Recovered sulphur | |
| | Oakville | 1983 | 44 | Oil refining | Recovered sulphur | |
| **Shell Canada Limited**<br>P.O. Box 1480, Station "M"<br>Calgary, Alberta<br>T2P 0L6<br>Contact: Mr. Guy Stuart<br>Telephone: (403) 691-4392<br>Facsimile: (403) 269-8814 | Sarnia | 1966 | 35 | Oil refining | Recovered sulphur | Hydrogen sulphide in refinery gases removed by absorption in an amine solution. Sulphur produced by modified Claus process. |
| **Sifto Canada Inc.**<br>5430 Timberlea Boulevard<br>Mississauga, Ontario<br>L4W 2T7<br>Contact: Mr. Gary Noseworthy<br>Telephone: (905) 629-7083, ext. 300<br>Facsimile: (905) 629-8911 | Goderich/S | 1872 | 330 | Quadruple-effect vacuum pan evaporation | Evaporated salt | |
| | Goderich/U | 1959 | 10 000 | Crushing, screening | Rock salt | |
| **St. Lawrence Cement Inc.**<br>2391 Lakeshore Road West<br>Mississauga, Ontario<br>L5J 1K1<br>Contact: Mr. Jacques Nadeau<br>Telephone: (905) 822-1653<br>Facsimile: (905) 822-5019 | Mississauga/O | 1956 | 1.9 Mt/y | Dry process | Cement | |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ONTARIO (cont'd)** | | | | | | |
| **Starratt Resources Ltd.**<br>116 - 65 Front Street West<br>Toronto, Ontario<br>M5J 1E6<br>Contact: Mr. Peter Jorgensen<br>Telephone: (416) 361-1845<br>Facsimile: (416) 361-1222 | Mine/mill near Sharbot Lake/O | 1968 | 25 | Dry milling | Tremolite "Clarendite Brand" | Reinforcing filler for friction products. Company purchased from Commercial Industrial Minerals Limited on November 18, 1994. |
| **Suncor Inc.**<br>Sunoco Group<br>36 York Mills Road<br>North York, Ontario<br>M2P 2C5<br>Telephone: (519) 337-2301 | Sarnia | 1984 | 50 | Oil refining | Recovered sulphur | Amine absorption refinery fuel gas. |
| **Unimin Canada Ltd.**<br>Nepheline Syenite Operations<br>P.O. Box 2000<br>Havelock, Ontario<br>K0L 1Z0<br>Contact: Mr. T.S. Harvey<br>Telephone: (705) 877-2500<br>Facsimile: (705) 877-3129 | Blue Mountain, Havelock/O | 1955 | 1 100 | Crushing, magnetic separation, sizing, fine grinding | Nepheline syenite | |
| | Nephton Operation, Nephton/O | 1936 | 1 360 | Crushing, magnetic separation, sizing, fine grinding | Nepheline syenite | Mill operates three shifts per day, seven days per week, producing several grades of nepheline syenite to meet a wide variety of markets. |
| **Unimin Canada Ltd.**<br>Ontario Silica Operations<br>P.O. Box 220<br>Midland, Ontario<br>L4R 4K8<br>Contact: Mr. H.P. Bowen<br>Telephone: (705) 526-5476<br>Facsimile: (705) 526-7161 | Killarney, Badgeley Island/O | 1970 | 3 800 | Crushing, screening, washing | Silica | Seasonal operation from April to November. Two shifts per day, five days per week. Silica sold for ferrosilicon production. |
| | Midland/O | 1970 | 1 200 | Dry milling | Silica | Silica sand and several grades of flour. Operates 5 days per week, 24 hours per day. |
| **Victoria Graphite Inc.**<br>Suite 1320<br>4 King Street West<br>Toronto, Ontario<br>M5H 1B6<br>Telephone: (416) 363-1240 | Mine, Portland/O | 1994 | 80 | Grinding, flotation | Flake graphite | Began pilot operation in June 1994. Presently an intermittent operation. |
| | Processing plant, Perth | 1997/98 | | | | Start-up of Perth, Ontario, upgrading plant in 1997/98. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Westroc Inc.**<br>2424 Lakeshore Road West<br>Mississauga, Ontario<br>L5J 1K4<br>Contact: Mr. Ivan Charvat<br>Telephone: (905) 823-9881<br>Facsimile: (905) 823-4464 | Mississauga, Peel County | 1963 | 1 000 | Drying, calcining | Wallboard | Synthetic gypsum is obtained from flue-gas desulphurization at Ontario Power Generation Inc.'s Lambton thermal-electric generating station. |

## MANITOBA

| | | | | | | |
|---|---|---|---|---|---|---|
| **Georgia-Pacific Canada, Inc.**<br>1405 Sargent Avenue<br>Winnipeg, Manitoba<br>R3E 0G6<br>Contact: Mr. Kurt Ising<br>Telephone: (204) 784-2420<br>Facsimile: (204) 772-0730 | Amaranth/O | 1988 | • • | Quarry | Gypsum | Ships gypsum to Winnipeg and Edmonton plants. |
| | Winnipeg | 1929 | 1.1 Mt/y | Grinding | Gypsum, wallboard | Manufacturing plant. |
| **Grace Canada, Inc.**<br>Construction Products Division<br>294 Clements Road West<br>Ajax, Ontario<br>L1S 3C6<br>Contact: Mr. Dennis Iwaniuk<br>Telephone: (780) 454-4511 | Winnipeg | 1976 | 6 000 t/y | Expanding | Lightweight aggregate (vermiculite) | Aggregate is used for loose insulation, horticultural products, industrial vermiculite and fireproofing. |
| | | 1978 | 6 000 t/y | Expanding | Perlite aggregate | Perlite aggregate is used for cryogenic insulation, and horticultural and industrial purposes. |
| **Inland Cement Limited**<br>P.O. Box 3961<br>Edmonton, Alberta<br>T5L 4P8<br>Contact: Mr. Harvey Bell<br>Telephone: (204) 474-1405<br>Facsimile: (204) 489-1261 | Mafeking | 1930 | 2 040 | Quarry | Limestone | Limestone is used in the production of Portland cements. Operation ceased in 1992. |
| **Westroc Inc.**<br>2424 Lakeshore Road West<br>Mississauga, Ontario<br>L5J 1K4<br>Contact: Mr. Ivan Charvat<br>Telephone: (905) 823-9881<br>Facsimile: (905) 823-4464 | Amaranth/O | 1978 | 900 | Crushing | Gypsum | Crude gypsum is shipped to the company's calcining plant in Winnipeg. |
| | Winnipeg | 1930 | 450 | Crushing, calcining | Plaster, wallboard | |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **SASKATCHEWAN** | | | | | | |
| **Agrium Inc.**<br>Potash Operations<br>13131 Lake Fraser Drive, S.E.<br>Calgary, Alberta<br>T2J 7E8<br>Contact: Mr. Peter Busse<br>Telephone: (306) 683-1211<br>Facsimile: (306) 668-2003 | Vanscoy/U | 1969, 1972 re-opened, 1997 expanded | 1.79 Mt/y KCl | Crushing, flotation | Potash | Company name changed on May 10, 1995, from Cominco Fertilizers Ltd. Three grades of potash are produced: standard, coarse and granular. Expansion was completed in late 1997. |
| **Big Quill Resources Inc.**<br>P.O. Box 1059<br>Wynyard, Saskatchewan<br>S0A 4T0<br>Contact: Mr. Dennis Puff<br>Telephone: (306) 554-3322<br>Facsimile: (306) 554-3858 | Big Quill Lake | 1992 | 30 | Ion exchange | Potassium sulphate | Started production from sodium sulphate brines in 1992. |
| | | 1996 | 30 | Glaserite | Potassium sulphate | Start-up in March 1996. |
| | | 1999 | 80 | Glaserite | Potassium sulphate | Start-up in February 1999. The total mill capacity is 50 000 t/y. |
| **Canadian Clay Products Inc.**<br>P.O. Box 70<br>Wilcox, Saskatchewan<br>S0G 5E0<br>Contact: Ms. Kay Perkin<br>Web site: www.canadianclay.com<br>Telephone: (306) 732-2085<br>Facsimile: (306) 732-2100 | Wilcox/O | 1978 | 250 | Drying, grinding, sizing | Sodium bentonite | Bentonite production for use in the geotechnical industry (slurry wall trenching), waste and water lagoon sealing, oil drilling, animal feed, foundry and herbicide industries, and for water treatment absorbants. |
| **Canadian Salt Company Limited, The**<br>Suite 700<br>755 St-Jean Boulevard<br>Pointe-Claire, Quebec<br>H9R 5M9<br>Contact: Mr. Donald Slater<br>Telephone: (306) 345-2299<br>Facsimile: (306) 345-2552 | Belle-Plaine | 1969 | 600 | Filtering, drying, compaction | Evaporated salt | Plant uses sodium chloride brines produced at the nearby potash solution mine of IMC Kalium Canada Ltd. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Cindercrete Products Ltd.**<br>P.O. Box 306<br>Regina, Saskatchewan<br>S4P 3A1<br>Contact: Mr. Kevin Tell<br>Telephone: (306) 789-2636<br>Facsimile: (306) 789-7499 | Saskatoon | 1978 | 300 cubic yards/day | Expanding | Lightweight aggregate (expanded clay) | Seasonal. |
| **Consumers' Co-operative Refineries Limited**<br>P. O. Box 260<br>Regina, Saskatchewan<br>S4P 3A1<br>Contact: Mr. Reid French<br>Telephone: (306) 721-5352<br>Facsimile: (306) 721-5277 | Regina | 1988 | 220 | Oil refining | Recovered sulphur | Hydrogen sulphide is removed by diglycolamine absorption. Sulphur is produced in a three-stage Clause Unit with Sulfreen tail gas clean-up. |
| **Hudson Bay Mining and Smelting Co., Limited**<br>P.O. Box 1500<br>Flin Flon, Manitoba<br>R8A 1N9<br>Contact: Mr. Gary Allen<br>Telephone: (204) 687-2366<br>Facsimile: (204) 687-4193 | Deschambault Lake/O | 1973 | Standby | • • | Silica | High-grade silica flux is used in the Flin Flon, Manitoba, smelter complex. Presently on standby. |
| | Tyrrell Lake/O | 1974 | 43 000 t/y silica, 4 000 t/y sand and gravel | • • | Silica, sand and gravel | Low-grade silica flux is used in the Flin Flon, Manitoba, smelter complex. |
| **IMC Central Canada Potash Inc.**<br>P.O. Box 1506<br>Colonsay, Saskatchewan<br>S0K 0Z0<br>Contact: Mr. Kelvin Dereski<br>Telephone: (306) 944-2223<br>Facsimile: (306) 944-4245 | Colonsay/U | 1969 | 1.6 Mt/y KCl, 130 000 t/y salt | Crushing, flotation, crystallization, compaction | Potash, salt | Three grades of muriate of potash (KCl) are produced: standard, coarse and granular. Various grades of salt are also produced. |
| **IMC Kalium Canada Ltd.**<br>P.O. Box 7500<br>Regina, Saskatchewan<br>S4P 4L8<br>Contact: Mr. Norm Beug<br>Telephone: (306) 345-8400<br>Facsimile: (306) 345-8200 | Belle-Plaine, near Moose Jaw/S | 1964 | 2.2 Mt/y KCl | Multiple-effect evaporators, crystallizers | Potash | Potash-rich solution is evaporated and crystallized to produce four agricultural grades and two industrial grades of potash. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **SASKATCHEWAN (cont'd)** | | | | | | |
| **Inland Cement Limited**<br>P.O. Box 767, Victoria Plains<br>Regina, Saskatchewan<br>S4P 3A8<br>Contact: Mr. Harvey Bell<br>Telephone: (204) 474-1405<br>Facsimile: (204) 489-1261 | Regina/O | 1956 | 215 000 t/y | Dry process, crushing, grinding | Cement | Clinker production was suspended; only the distribution facility is operating. |
| **International Minerals & Chemical Corporation (Canada) Global Limited**<br>Highway 80 East<br>Esterhazy, Saskatchewan<br>S0A 0X0<br>Contact: Mr. Eric Beaumont<br>Telephone: (306) 745-4212<br>Facsimile: (306) 745-4394 | K1 mine, Esterhazy/U | 1962 | 1 814 400 t/y KCl, 180 000 t/y rock salt | Crushing, heavy media separation, flotation, crystallization | Potash, by-product rock salt | Name changed from International Minerals & Chemical Corporation (Canada) Limited in February 1995. Four grades of potash are produced: standard, special standard, coarse and granular. |
| | K2 mine, Esterhazy/U | 1967 | 1 995 800 t/y KCl | Crushing, flotation, heavy media separation, crystallization | Potash | Four grades of potash are produced. |
| **Miller Western Industries Ltd.**<br>Palo, Saskatchewan<br>S0K 2K0<br>Contact: Mr. Gil Heim<br>Telephone: (306) 658-2009<br>Facsimile: (306) 658-2014 | Palo/O | 1936 | 450 | Submerged combustion and drying | Sodium sulphate | Salt cake and detergent grades. |
| **NSC Minerals Inc.**<br>2241 Speers Avenue<br>Saskatoon, Saskatchewan<br>S7L 5X6<br>Telephone: (306) 934-6477<br>Facsimile: (306) 242-0178 | Rocanville | 1990 | 200 000 t/y | Screening | Rock salt | By-product rock salt from potash tailings. |
| | Vanscoy | 1988 | 200 000 t/y | Screening | Rock salt | By-product rock salt from potash tailings. |
| **Ormiston Mining and Smelting Co. Ltd.**<br>P.O. Box 100<br>Ormiston, Saskatchewan<br>S0H 3H0<br>Telephone: (403) 253-7887<br>Facsimile: (403) 253-1484 | Ormiston | 1930 | 200 | Submerged combustion and drying | Sodium sulphate | Restarted production of sodium sulphate in 1997. Upgraded plant to produce detergent-grade product in 1998. Shut down in December 1998 due to lack of sales. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Potash Corporation of Saskatchewan Inc.**<br>Allan Division<br>Allan, Saskatchewan<br>S0K 0C0<br>Contact: Mr. H. Ewarchuk<br>Telephone: (306) 257-3312, ext. 238<br>Facsimile: (306) 257-4240 | Allan/U | 1968 | 1 885 000 t/y KCl | Crushing, flotation, screening, crystallization, compaction | Potash | Two grades of muriate of potash (KCl) are produced from the flotation circuit and two grades from the crystallizer circuit. |
| **Potash Corporation of Saskatchewan Inc.**<br>Cory Division<br>P.O. Box 1320<br>Saskatoon, Saskatchewan<br>S7K 3N9<br>Contact: Mr. Dale Johnston<br>Telephone: (306) 382-0525, ext. 101<br>Facsimile: (306) 384-9132 | Saskatoon/U | 1968 | 1 361 000 t/y KCl | Crushing, flotation, crystallization | Potash | Two grades of muriate of potash (KCl) are produced from the crystallizer circuit. |
| **Potash Corporation of Saskatchewan Inc.**<br>Lanigan Division<br>500 - 122 1st Avenue South<br>Saskatoon, Saskatchewan<br>S7K 7E5<br>Contact: Mr. Wayne Peddie<br>Telephone: (306) 933-8500<br>Facsimile: (306) 652-2699 | Lanigan/U | 1968 | 3 828 000 t/y KCl | Crushing, flotation, screening, compaction, crystallization | Potash | Four grades of potash fertilizer are produced. There are two plants, one of which is idled. |
| **Potash Corporation of Saskatchewan Inc.**<br>Patience Lake Division<br>P.O. Box 509<br>Saskatoon, Saskatchewan<br>S7K 3L6<br>Contact: Mr. Moe Davyduke<br>Telephone: (306) 667-4100<br>Facsimile: (306) 955-0424 | Saskatoon/S | 1965 | 1 033 000 t/y KCl | Solution and precipitation in ponds | Potash | Underground operation was converted to solution mining in 1989. Three grades of muriate of potash (KCl) are produced from solution mining. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **SASKATCHEWAN (cont'd)** | | | (tonnes/day) | | | |
| **Potash Corporation of Saskatchewan Inc.**<br>Rocanville Division<br>Rocanville, Saskatchewan<br>S0A 3L0<br>Contact: Mr. Garth Maki<br>Telephone: (306) 645-2870<br>Facsimile: (306) 645-2733 | Rocanville/U | 1970 | 2 295 000 t/y KCl | Crushing, flotation, screening, compaction, crystallization | Potash | Four grades of potash are produced. |
| **PSC Alsask Inc.**<br>P.O. Box 10<br>Alsask, Saskatchewan<br>S0L 0A0<br>Contact: Mr. Bob Nylen<br>E-mail: PSCalsask@SK.sympatico.ca<br>Telephone: (306) 477-7750<br>Facsimile: (306) 477-7751 | Alsask | 1997 | 50 | Ion exchange, evaporation, granulation | Potassium sulphate | Production began in September 1997. Agricultural, industrial and chemical grades are produced and packaged at the site. |
| **Red Deer Silica Inc.**<br>3450 Idylwyld Drive North<br>Saskatoon, Saskatchewan<br>S7L 5Y7<br>Contact: Mr. Edward Budnick<br>Telephone: (306) 934-1781 | Hudson Bay, Red Deer River/O | 1989 | 700 short tons per 8-hr shift | Drying, screening, blending, bagging | Silica sand | Currently open-face mining on a 10-hectare mine site cleared in 1989. Current washing and screening operation is producing white bunker sand for marketing to the golf course industry, stucco sand, and sandblasting sand. Also producing/marketing top dressing and root zone mix sand(s) from a deposit (95% silicon dioxide) near Borden, Saskatchewan (opened in 1982). Currently in the process of raising capital to construct beneficiation plant near Hudson Bay, Saskatchewan, to exploit vast (14 million proven short tons) reserve of high-grade silica (+99.7% silicon dioxide). |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Saskatchewan Minerals**<br>(a division of Goldcorp Inc.)<br>P.O. Box 120<br>Chaplin, Saskatchewan<br>S0H 0V0<br>Contact: Mr. T.D. Lavineway<br>Telephone: (306) 395-2561<br>Facsimile: (306) 395-2546 | Chaplin/O | 1948 | 420 | Multiple-effect evaporation and drying | Sodium sulphate | Detergent-grade produced. |
| | Ingebrigt/O | 1967 | 500 | Submerged combustion, evaporation and drying | Sodium sulphate | Salt cake and detergent-grade produced. |
| **Sifto Canada Inc.**<br>5430 Timberlea Boulevard<br>Mississauga, Ontario<br>L4W 2T7<br>Contact: Mr. Gary Noseworthy<br>Telephone: (905) 629-7083, ext. 300<br>Facsimile: (905) 629-8911 | Unity/S | 1949 | 500 | Quadruple-effect vacuum pan evaporation | Evaporated salt | |
| **Sterling Pulp Chemicals (Sask) Ltd.**<br>P.O. Box 1586<br>Saskatoon, Saskatchewan<br>S7K 3R3<br>Contact: Mr. Bill Compton<br>Telephone: (306) 931-7767<br>Facsimile: (306) 933-0888 | Saskatoon/S | 1963 | 100 | Chloralkali | Caustic soda, chlorine, hydrochloric acid, hydrogen | Primarily a manufacturer of pulp and water treatment chemicals. |
| | | 1979 | 130 | Sodium chlorate | Sodium chlorate | |
| | | 1985 | 25 | Calcium hypochlorite | Calcium hypochlorite | |

## ALBERTA

| | | | | | | |
|---|---|---|---|---|---|---|
| **Albchem Industries Ltd.**<br>P.O. Box 278<br>Bruderheim, Alberta<br>T0B 0S0<br>Telephone: (403) 796-3900<br>Facsimile: (403) 796-2226 | Bruderheim | 1991 | 41 000 t/y | Solutioning | Salt brine | Brining to produce sodium chlorate. |
| **Alberta Energy Company Ltd.**<br>3700 - 707 8th Avenue S.W.<br>Calgary, Alberta<br>T2P 1H5<br>Contact: Mr. Alan Johnston<br>Telephone: (403) 261-2477<br>Facsimile: (403) 716-2477 | Hythe | 1983 | 120 | Gas processing | Sulphur | Liquid hydrocarbon recovery by refrigeration. Hydrogen sulphide is removed from natural gas by sulfinol absorption. Sulphur is produced by the Claus process. |
| | Sexsmith | 1995 | 475 | Gas processing | Sulphur | Liquid hydrocarbon recovery by refrigeration. Hydrogen sulphide is removed from natural gas by sulfinol absorption. Sulphur is produced by the Super Claus process. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ALBERTA (cont'd)** | | | | | | |
| **Amoco Canada Petroleum Company**<br>P.O. Box 200, Station "M"<br>Calgary, Alberta<br>T2P 2H8<br>Telephone: (403) 233-1594<br>Facsimile: (403) 233-5680 | Caroline North | 1989 | 10 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by methyldiethanolamine absorption. Sulphur is produced by the modified Claus process. |
| | Caroline South | 1968 | 6 | Gas processing | Sulphur | |
| | Crossfield | 1968 | 432 | Gas processing | Sulphur | |
| | Kaybob I/II | 1968 | 560 | Gas processing | Sulphur | |
| | Whitecourt | 1962 | 650 | Gas processing | Sulphur | |
| **Anderson Exploration Limited**<br>P.O. Box 458<br>Carstairs, Alberta<br>T0M 0N0<br>Telephone: (403) 232-7100 | Carstairs | 1960 | 65 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by diethanolamine absorption. Sulphur is produced by the modified Claus process. |
| **Baymag Mines Co. Limited**<br>800, 10655 Southport Road S.W.<br>Calgary, Alberta<br>T2W 4Y1<br>Contact: Dr. Hagen Schultes<br>Telephone: (403) 271-9400<br>Facsimile: (403) 271-0010 | Exshaw | 1982 | 270 | Calcining | Calcined magnesium oxide | Only magnesium oxide producer in Canada. |
| | | 1989 | 50 | Fusing | Fused magnesia | |
| | | 1997 | 150 | Calcining | Calcined magnesium oxide | |
| **Canadian 88 Energy Corporation**<br>700, 400 - 3rd Avenue S.W.<br>Calgary, Alberta<br>T2P 4H2<br>Contact: Mr. Michael Hawkings<br>Telephone: (403) 556-3424 | Olds | 1964 | 404.9 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by methyldiethanolamine (MDEA) absorption. Sulphur is produced by the modified Claus process. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Canadian Occidental Petroleum Ltd.**<br>1500, 635 - 8th Avenue S.W.<br>Calgary, Alberta<br>T2P 3Z1<br>Contact: Mr. Brian McAusland<br>Telephone: (403) 226-0022<br>Facsimile: (403) 226-0035 | Balzac | 1961 | 900 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by diethanolamine (DEA) absorption. Sulphur is produced by the modified Claus process. |
| **Canadian Salt Company Limited, The**<br>Suite 700<br>755 St-Jean Boulevard<br>Pointe-Claire, Quebec<br>H9R 5M9<br>Contact: Mr. Kenneth Palamarek<br>Telephone: (403) 724-3745<br>Facsimile: (403) 724-3827 | Lindbergh/S | 1968 | 390 | Triple-effect vacuum pan evaporation, compaction | Evaporated salt | Produces coarse and fine salt. |
| **Chevron Canada Resources**<br>500 - 5th Avenue S.W.<br>Calgary, Alberta<br>T2P 0L7<br>Contact: Mr. B.W. Lock<br>Telephone: (403) 234-5672<br>Facsimile: (403) 234-6206 | Kaybob South III | 1972 | 3 557 | Gas processing | Sulphur | Hydrogen sulphide is removed by diethanolamine absorption. Sulphur is produced by the Claus process. |
| | Medicine Lodge | 1989 | 57 | Gas processing | Sulphur | Shut down in September 1998. Hydrogen sulphide is removed by diethanolamine absorption. Sulphur is produced by the Claus process. |
| **Crestar Energy Inc.**<br>Suite 3000<br>333 - 7th Avenue S.W.<br>Calgary, Alberta<br>T2P 2Z1<br>Contact: Mr. S. Barry Jackson<br>Telephone: (403) 231-6700<br>Facsimile: (403) 231-3833 | Paddle River | 1966 | • • | Gas processing | Sulphur | Sulphur plant suspended operations. Acid gas reinjection was initiated in 1996. |
| **CXY Chemicals Canada Ltd. Partnership**<br>P.O. Box 100<br>Bruderheim Resource Rd.<br>Bruderheim, Alberta<br>T0B 0S0<br>Telephone: (780) 796-6109<br>Facsimile: (780) 796-3838 | Bruderheim | 199 | 37 000 t/y as of August 1998 | Solutioning | Salt brine | Brining to produce sodium chlorate. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ALBERTA (cont'd)** | | | | | | |
| **Dow Chemical Canada Inc.**<br>P.O. Box 1012<br>Sarnia, Ontario<br>N7T 7K7<br>Contact: Mr. O. Ciochini<br>Telephone: (403) 998-8558<br>Facsimile: (403) 998-6723 | Fort Saskatchewan | 1967 | 4 000 | Solutioning | Salt brines | Brining to produce caustic soda and chlorine. |
| **Dynegy Canada Inc.**<br>Dynegy Midstream Services<br>Suite 2200<br>350 - 7th Avenue S.W.<br>Calgary, Alberta<br>T2P 3N9<br>Telephone: (403) 213-6000<br>Facsimile: (403) 213-6005 | Mazeppa | 1966 | 577 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by sulfinol absorption. Sulphur is produced by the modified Claus process. |
| **Georgia-Pacific Canada, Inc.**<br>403 - 118A Avenue N.E.<br>Edmonton, Alberta<br>T6S 1C6<br>Contact: Mr. D. Nielson<br>Telephone: (403) 472-6631<br>Facsimile: (403) 472-6674 | Edmonton | 1968 | 190 000 t/y | Crushing, calcining | Gypsum wallboard | Gypsum for the plant is produced at Canal Flats, British Columbia. |
| **Grace Canada, Inc.**<br>Construction Products Division<br>294 Clements Road West<br>Ajax, Ontario<br>L1S 3C6<br>Contact: Mr. Dennis Iwaniuk<br>Telephone: (780) 454-4511 | Edmonton | 1971 | 6 000 t/y | Exfoliating | Lightweight aggregate (vermiculite) | Aggregate is used for loose insulation, horticultural products, industrial vermiculite and fireproofing. |
| | | 1976 | 6 000 t/y | Expanding | Perlite aggregate | Aggregate is used for cryogenic insulation and horticultural and industrial uses. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Gulf Midstream Services**<br>1700 Canterra Tower<br>400-3rd Avenue S.W.<br>Calgary, Alberta<br>T2P 4H2<br>Contact: Mr. Richard Arab<br>Telephone: (403) 205-7694 | Brazeau River-Peco | 1969 | 110 | Gas processing | Sulphur | Sulphur in all plants is produced by the modified Claus process. |
| | Nordegg | 1970 | 47 | Gas processing | Sulphur | |
| | Rimbey | 1961 | 128 | Gas processing | Sulphur | In the Rimbey gas plant, hydrogen sulphide is removed from natural gas by monodiethylamine absorption. |
| | Strachan | 1971 | 953 | Gas processing | Sulphur | In the Strachan gas plant, hydrogen sulphide is removed from natural gas by diethanolamine absorption. A CBA Tail Gas Clean-Up Unit was installed at Strachan. A sulphur degassing unit was installed in 1995. |
| **Highwood Resources Ltd.**<br>Limeco Products Division<br>Suite 705<br>324 - 8th Avenue S.W.<br>Calgary, Alberta<br>T2P 2Z2<br>Contact: Mr. Garry Lynkowski<br>Telephone: (403) 261-3999<br>Facsimile: (403) 264-2959 | Mine - 40 km SW of processing plant at Rocky Mountain House/O | 1985 | 50 000 t/y | | Limestone, zeolite, gypsum | In January 1997, Limeco Products Limited and Mountain Minerals Co. Ltd. were amalgamated with Highwood Resources Ltd. |
| | Plant - Rocky Mountain House | 1985 | 30 000 t/y | Pulverizing, grinding, pelletizing | | |
| **Highwood Resources Ltd.**<br>Mountain Minerals Division<br>Suite 705<br>324 - 8th Avenue S.W.<br>Calgary, Alberta<br>T2P 2Z2<br>Contact: Garry Lynkowski<br>Telephone: (403) 261-3999<br>Facsimile: (403) 264-2959 | Plant - Lethbridge | 1945 | 110 000 t/y | Pulverizing, micronizing, sizing | Barite | In January 1997, Mountain Minerals Co. Ltd. amalgamated with Highwood Resources Ltd. Barite is mined from vein deposits at Parson, B.C., and shipped to Lethbridge for processing. Barite is used in drilling muds, and as a filler and extender in paint, plastic and rubber. It is also used in brake linings, sound-dampening, coatings, adhesives and mold washing. |
| **Husky Oil Operations Limited**<br>P.O. Box 6525, Station "D"<br>707 - 8th Avenue S.W.<br>Calgary, Alberta<br>T2P 3G7<br>Telephone: (403) 298-7459 | Rainbow Lake | 1968 | 142 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by amine absorption. |
| | Ram River | 1972 | 4 572 | Gas processing | Sulphur | Hydrogen sulphide is removed by diethanolamine absorption. Sulphur is produced by the Claus process. |
| **Imperial Oil Limited**<br>111 St. Clair Avenue West<br>Toronto, Ontario<br>M5W 2J8<br>Telephone: (416) 968-4111 | Edmonton | 1975 | 40 | Oil refining | Recovered sulphur | |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ALBERTA (cont'd)** | | | | | | |
| **Imperial Oil Resources Limited**<br>237 - 4th Avenue S.W.<br>P.O. Box 2480, Station 'M'<br>Calgary, Alberta<br>T2P 3M9<br>Telephone: (403) 237-3874 | Bonnie Glen | 1974 | 34.5 | Gas processing | Sulphur | Bonnie Glen uses diglycolamine and a Ucarsol selective amine to sweeten gas in the three processing plants. Acid gas from the sweetening process is fed to a three-stage Claus plant for sulphur recovery. |
| | Quirk Creek | 1971 | 307 | Gas processing | Sulphur | Quirk Creek gas plant has an MCRC Tail Gas Clean-Up Unit. Hydrogen sulphide is removed from natural gas by Flexsorb SE absorption. |
| | Redwater | 1956 | 11 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by monoethanolamine absorption at Redwater. |
| **Inland Aggregates Limited**<br>Suite 216<br>200 Rivercrest Drive S.E.<br>Calgary, Alberta<br>T2C 2X5<br>Contact: Mr. Leonard Popoff<br>Telephone: (403) 531-3000<br>Facsimile: (403) 531-3001 | Calgary/O | 1954 | 350 cubic metres/day | Expanding | Lightweight aggregate (expanded shale) | Expanded shale is used as a lightweight aggregate in masonry and structural concrete applications. Also used as a structural lightweight backfill, and in insulating under roads, retaining walls, and around water lines for frost protection. Used for enveloping around gas pipelines in unstable ground conditions. Used for fireproofing and horticultural soil conditioner. |
| | Edmonton/O | 1953 | 190 cubic metres/day | Expanding | Lightweight aggregate (expanded clay) | Used for lightweight concrete, masonry units, and lightweight structural insulating fill material. |
| **Inland Cement Limited**<br>P.O. Box 3961<br>Edmonton, Alberta<br>T5L 4P8<br>Contact: Mr. Roger Cotterill<br>Telephone: (403) 420-2500<br>Facsimile: (403) 420-2651 | Plant - Edmonton | 1956 | 1 Mt/y | Dry process | Cement | Plant consists of one dry kiln. Dry kiln is a four-stage pre-heater with ESP calciner. |
| | Quarry - Cadomin/O | ** | 6 000 | ** | Limestone | Limestone is used in the production of Portland cements by Inland Cement Limited. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Lafarge Canada Inc.**<br>c/o Lafarge Corporation<br>300-11130 Sunrise Valley Drive<br>Reston, VA 20195-1415<br>U.S.A.<br>Contact: Ms. Danielle Benoit<br>Telephone: (514) 738-1202<br>Facsimile: (514) 738-1124 | Exshaw/O<br><br>Seebe | 1911, expanded 1980 | 1.08 Mt/y cement | Dry process | Cement, limestone,<br><br>Shale | |
| **Mobil Oil Canada, Ltd.**<br>P.O. Box 800<br>Calgary, Alberta<br>T2P 2J7<br>Telephone: (403) 260-7910 | Lone Pine Creek | 1971 | 165 | Gas processing | Sulphur | |
| **Northstar Energy Corporation**<br>Suite 3000<br>400 - 3rd Avenue S.W.<br>Calgary, Alberta<br>T2P 4H2<br>Contact: Mr. Bern Bradley<br>Telephone: (403) 562-3100<br>Facsimile: (403) 563-3662 | Coleman | 1961 | 800 | Gas processing | Sulphur, natural gas | Hydrogen sulphide is removed by sulfinol solution absorption. Sulphur is recovered by the modified Claus process and Super Claus Tail Gas Clean-Up. |
| **Penn West Petroleum Ltd.**<br>800-111 5th Avenue S.W.<br>Calgary, Alberta<br>T2P 3Y6<br>Contact: Mr. Greg Gabert<br>Telephone: (780) 542-8600, ext. 118<br>Facsimile: (780) 542-2988 | Minnehik-Buck Lake | 1967 | 149 | Gas processing | Sulphur | Penn West Petroleum Ltd. purchased the Minnehik-Buck Lake gas processing plant from Norcen Energy Resources Limited in 1995. Hydrogen sulphide is removed by methyldiethanolamine absorption. Sulphur produced by the modified Claus process. |
| **Petro-Canada**<br>P.O. Box 2844<br>Calgary, Alberta<br>T2P 3E3<br>Contact: Mr. Al Mulloy (gas processing)<br>Telephone: (403) 296-5375<br>Facsimile: (403) 296-3108<br>Contact: Mr. Mark Stevens (oil refining)<br>Telephone: (905) 804-4870<br>Facsimile: (905) 804-4896 | Brazeau River-Peco | 1985, 1990 | 448 | Gas processing | Sulphur | Hydrogen sulphide is removed by diethanolamine absorption. Sulphur is produced by the modified Claus process. |
| | Edmonton | 1971 | 56 | Oil refining | Recovered sulphur | |
| | Gold Creek | 1970 | 100 | Gas processing | Sulphur | Sold to Rio Alto Exploration Ltd. effective June 1998. |
| | Hanlan Robb | 1982 | 1 095 | Gas processing | Sulphur | |
| | Wildcat Hills | 1961, 1990 | 220 | Gas processing | Sulphur | |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ALBERTA (cont'd)** | | | | | | |
| **Poco Petroleums Ltd.**<br>3500, 250 - 6th Avenue S.W.<br>Calgary, Alberta<br>T2P 3H7<br>Telephone: (403) 260-8000 | Sturgeon Lake | 1969 | 98 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by sulfinol absorption. Sulphur is produced by the modified Claus process. |
| **Rio Alto Exploration Ltd.**<br>Suite 2500<br>205 - 5th Avenue S.W.<br>Calgary, Alberta<br>T2P 2V7<br>Contact: Mr. Bruce R. Wilson, Production Manager<br>Telephone: (403) 716-6207<br>Facsimile: (403) 716-6337 | Gold Creek | 1970 | 100 | Gas processing | Sulphur | |
| **Shell Canada Limited**<br>P.O. Box 1480, Station "M"<br>Calgary, Alberta<br>T2P 0L6<br>Contact: Mr. Guy Stuart<br>Telephone: (403) 691-4392<br>Facsimile: (403) 269-8814 | Caroline | 1993 | 5 000 | Gas processing | Sulphur | Hydrogen sulphide is removed from raw gas by sulfinol/methyldiethanolamine absorption at the Caroline plant. SCOT Tail Gas Clean-Up. |
| | Cochrane (Jumping Pound plant) | 1951 | 619 | Gas processing | Sulphur | Hydrogen sulphide is removed from raw gas by Sulfinol absorption at Burnt Timber, Jumping Pound and Waterton plants. Sulphur is produced from hydrogen sulphide by the Claus process at all plants. |
| | Cremona (Burnt Timber plant) | 1970 | 489 | Gas processing | Sulphur | |
| | Pincher Creek (Waterton plant) | 1962 | 3 107 | Gas processing | Sulphur | SCOT Tail Gas Clean-Up at Waterton. |
| | Scotford | 1984 | 14 | Oil refining | Recovered sulphur | Hydrogen sulphide in refinery gases is removed by amine absorption. Sulphur is produced by the modified Claus process. |
| **Sil Industrial Minerals Inc.**<br>Box 6100, Necsc<br>Edmonton, Alberta<br>T5B 4K5<br>Contact: Mr. Barry Grundy<br>Telephone: (403) 478-7171<br>Facsimile: (403) 472-6984 | Bruderheim/O | 1971 | 1 000 | Washing, drying, sizing, magnetic separation, grinding | Silica sand | Fibreglass, foundry, sandblasting, filter grades; golf course sands including bunker, top dressing and root zone mix sand for green construction; silica flour for thermal cement applications; concrete and cement sands. |
| **Suncor Inc.**<br>Box 4001<br>Fort McMurray, Alberta<br>T9H 3E3<br>Telephone: (403) 743-6471<br>Facsimile: (403) 743-6853 | Fort McMurray/O | 1967 | 441 (1 train), 530 (2 trains) | Oil refining | Recovered sulphur | Sulphur recovery from synthetic crude is by hydrodesulphurization. Super Claus addition in 1994. |
| **Suncor Inc.**<br>P.O. Box 38<br>Calgary, Alberta<br>T2P 2V5<br>Telephone: (403) 743-6471<br>Facsimile: (403) 743-6853 | Rosevear North | 1976 | 110 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by chemical diethanolamine absorption and converted to elemental sulphur in a Claus plant. |
| | Rosevear South | 1979 | 171 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by Sulfinol absorption. Sulphur is produced by the modified Claus process. |
| | Simonette River | 1969 | 120 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by Sulfinol absorption. Sulphur is produced by the modified Claus process. |
| **Syncrude Canada Ltd.**<br>P.O. Bag 4009, M.D. 4140<br>Fort McMurray, Alberta<br>T9H 3L1<br>Contact: Mr. Ralph O'Grady<br>Telephone: (403) 790-5C74<br>Facsimile: (403) 790-8829 | Aurora mine, 40 km NE of Mildred Lake operation | May 2000 | 150 000 oil-bearing sand | Mining, crushing, slurrying, primary separation facility | Bitumen froth | Product is transported to Mildred Lake facility via pipeline slurry. Product undergoes upgrading at base plant. Total SSB production increased to 255 000 barrels/day. |
| | Mildred Lake/O | 1978 | 500 000 oil-bearing sand | Bitumen/crude oil facility | Light, sweet crude oil (Syncrude Sweet Blend, SSB) | Upgrading of bitumen is accomplished by cracking it to lower boiling-point products and removing sulphur and nitrogen by hydro-treating. Syncrude Canada Ltd. shipped its one billionth barrel of Syncrude Sweet Blend on April 16, 1998. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **ALBERTA (cont'd)** | | | | | | |
| **Talisman Energy Inc.**<br>2400, 855 - 2 Street S.W.<br>Calgary, Alberta<br>T2P 4J9<br>Contact: Mr. Dave Stewart<br>(Edson plant)<br>Telephone: (780) 723-9800<br>Contact: Mr. Brett McKechnie<br>(Teepee Creek plant)<br>Telephone: (780) 538-1001 | Edson | 1965 | 330 | Gas processing | Sulphur | |
| | Teepee Creek | 1977 | 25 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by diethanolamine absorption. Sulphur is produced by the three-stage Claus process. |
| **TransCanada Pipelines Limited**<br>TransCanada Midstream Division<br>Suite 3400<br>237 - 4th Avenue S.W.<br>Calgary, Alberta<br>T2P 5A4<br>Contact: Ms. Tracy Osterhold<br>Telephone: (403) 213-4143<br>Facsimile: (403) 213-4107 | Harmattan | 1966 | 490 | Gas processsing | Sulphur | Hydrogen sulphide is removed from natural gas by diethanolamine absorption. Sulphur is produced by the modified Claus process. |
| | Zama | 1968 (plant #1) | 80 | Gas processing | Sulphur | Modified Claus process. |
| | | 1995 (plant #2) | •• | | | Acid gas injection. |
| | | 1998 (plant #3) | •• | | | Acid gas injection. |
| **Ulster Petroleums Ltd.**<br>1900, 144 - 4 Avenue S.W.<br>Calgary, Alberta<br>T2P 3N4<br>Contact: Mr. Ron Kooy,<br>Area Superintendent<br>Telephone: (403) 631-3888<br>Telephone: (403) 631-3925<br>Facsimile: (403) 264-6545 | Wimborne | 1965 | 235 | Gas processing | Sulphur | Ulster Petroleums Ltd. now owns and operates the Wimborne gas plant following its purchase from Mobil Oil Canada, Ltd. |
| **Union Pacific Resources Inc.**<br>P.O. Box 39<br>Gordondale, Alberta<br>T0H 1Y0<br>Telephone: (403) 353-3984 | Progress | 1985, expanded 1995 | 50 | Gas processing | Sulphur | Expanded in 1995 to 135 million cubic feet per day. 98% recovery of sulphur. In 1998, the Progress gas plant was purchased from Norcen Energy Resources Limited. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Western Facilities Management Limited**<br>P.O. Box 880<br>Stetler, Alberta<br>T0C 2L0<br>Contact: Mr. Wayne Hausch<br>Telephone: (403) 742-7200<br>Facsimile: (403) 742-7230 | Nevis | 1956 | 300 | Gas processing | Sulphur | Hydrogen sulphide is removed by monoethanolamine absorption. Sulphur is recovered by the modified Claus process and Sulfreen Tail Gas Clean-Up. |
| **Westroc Inc.**<br>2424 Lakeshore Road West<br>Mississauga, Ontario<br>L5J 1K4<br>Contact: Mr. Ivan Charvat<br>Telephone: (905) 823-9881<br>Facsimile: (905) 823-4464 | Calgary | 1980<br>(new site) | 800 | Crushing, calcining | Wallboard | Gypsum is obtained from Windermere, British Columbia. |
| **Wolcott Gas Processing Ltd.**<br>Suite 1920<br>205 - 5th Avenue S.W.<br>Calgary, Alberta<br>T2P 2V7<br>Contact: Mr. Barry Winger<br>Telephone: (403) 266-7588<br>Facsimile: (403) 266-1497 | West Pembina | 1984 | 350 | Gas processing | Sulphur | |

## BRITISH COLUMBIA

| | | | | | | |
|---|---|---|---|---|---|---|
| **Amoco Canada Petroleum Company**<br>P.O. Box 200, Station "M"<br>Calgary, Alberta<br>T2P 2H8<br>Telephone: (403) 233-1594<br>Facsimile: (403) 233-5680 | Cypress | 1989 | 10 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by methyldiethanolamine absorption. Sulphur is produced by the modified Claus process. |
| **C2C Mining Corporation**<br>Bay 8<br>3716 - 56 Avenue, S.E.<br>Calgary, Alberta<br>T2C 2B5<br>Contact: Mr. LuVerne Hogg<br>Contact: Mr. Dave Koop<br>E-mail: c2c@ezpost.com<br>Telephone: (403) 264-5352<br>Facsimile: (403) 264-5365 | Ashcroft | 1998 | 100 | Crushing, calcining, rotary kiln, sizing | Zeolite | |
| | | 1998 | ** | Crushing, drying, sizing | Pyrophyllite | Pilot testing at Ashcroft plant. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **BRITISH COLUMBIA (cont'd)** | | | | | | |
| **Canada Pumice Corporation**<br>P.O. Box 26, Main Station<br>Abbotsford, British Columbia<br>V2S 4N7<br>Contact: Mr. Brian Wear<br>Telephone: (604) 852-1888<br>Facsimile: (604) 852-2775<br>(quarry)<br>Telephone: (250) 992-7955<br>Facsimile: (250) 992-7188 | Nakzo, Quesnel | 1990 | 600 | Dry screening | Pumice, vesicular basalt | Lightweight aggregate is used for lightweight insulating trenchfill, lightweight concrete, multicoloured landscape rock, specialty sands for all-weather sports fields, natural fertilizer and soil amendment, growing medium, gas BBQ briquettes, industrial ceramics, filters (for greenhouse gardening), loose insulation, refractories, and winter road abrasive. |
| **Cassiar Mines and Metals Inc.**<br>Suite 1910<br>777 Bay Street<br>Toronto, Ontario<br>M5G 2C8<br>Telephone: (416) 204-1455<br>Facsimile: (416) 204-1450 | Cassiar | 1999 | 550, increasing to 2 050 | Dry process, wet process | Chrysotile fibre (equivalent chrysotile production 18 000 t/y, going to 40 000 t/y) | Production start-up in December 1999. |
| | | 2001 | 1 000 | | Magnesium metal (equivalent magnesium metal 570 000 lb/d) | Joint venture with Aluminium of Korea Ltd. Feasibility report in 2000. |
| **Chevron Canada Limited**<br>1500 - 1050 West Pender Street<br>Vancouver, British Columbia<br>V6E 3T4<br>Telephone: (604) 668-5521<br>Facsimile: (604) 668-5639 | Burnaby | 1994 | 12 | Oil refining | Recovered sulphur | |
| **Clayburn Industries Ltd.**<br>33765 Pine Street<br>Abbotsford, British Columbia<br>V2S 5C1<br>Contact: Mr. John Rennie<br>Telephone: (604) 859-5288<br>Facsimile: (604) 859-0424 | Abbotsford | Early 1900s | 150 | Calcining | Calcined shale and fireclay | |
| | Kilgard | .. | 40 000 t/y | Quarry | Shale | Used for brick and refractory castable manufacturing at the Abbotsford plant. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Fireside Minerals Ltd.**<br>Suite 202<br>4406 - 50th Avenue<br>Red Deer, Alberta<br>T4N 3Z6<br>Contact: Mr. Gordon Webster<br>Telephone: (403) 343-7764<br>Facsimile: (403) 343-3563 | Watson Lake/O | 1997 | 200 | | Barite | |
| **Georgia-Pacific Canada, Inc.**<br>12509 - 116th Avenue<br>Surrey, British Columbia<br>V3V 3S6<br>Contact: Mr. Tom Brooks<br>Telephone: (604) 580-0642<br>Facsimile: (604) 580-1073 | Canal Flats | 1984 | 200 000 t/y | Quarry | Gypsum | Gypsum is shipped to Edmonton. |
| | Surrey | 1920 | 510 | Crushing, calcining | Gypsum wallboard | Gypsum for the plant is produced in Mexico. |
| **Great Pacific Pumice Inc.**<br>790 Millbank<br>Vancouver, British Columbia<br>V5Z 3Z3<br>Telephone: (604) 250-2750<br>Facsimile: (604) 879-6411 | Mt. Meager, Pemberton/O | 1996 | 200 | Crushing, screening | Pumice | Aggregate is used for horticulture, lightweight concrete, lightweight fill, landscape rock, athletic field soil amendment, cosmetic stone, and stone wash uses. |
| **Highwood Resources Ltd.**<br>Mountain Minerals Division<br>Suite 705<br>324 - 8th Avenue S.W.<br>Calgary, Alberta<br>T2P 2Z2<br>Contact: Mr. Garry Lynkowski<br>E-mail: garryl@telusplanet.net<br>Telephone: (403) 261-3999<br>Facsimile: (403) 264-2959 | Mine, Moberly/O | 1980 | | | Silica | Silica from Moberly is shipped to Golden for processing. Silica is used for glass containers. Also used for sandblast, foundry, golf course and filter media. |
| | Mine, Parson/U | 1945 | | | Barite | In January 1997, Mountain Minerals Co. Ltd. amalgamated with Highwood Resources Ltd. Barite is mined from vein deposits at Parson, B.C., and shipped to Lethbridge, Alberta, for processing. |
| | Plant, Golden | 1980 | 150 000 t/y | Crushing, washing, drying, sizing | Silica | |
| **Lafarge Canada Inc.**<br>R.R.2<br>Shuswap Road<br>Kamloops, British Columbia<br>V2C 2J3<br>Contact: Mr. John Wong<br>Telephone: (250) 573-3211<br>Facsimile: (250) 573-4010 | Kamloops | • • | • • | Quarry | Gypsum | Used in cement manufacture. |

## INDUSTRIAL MINERAL MINES AND PROCESSING PLANTS BY PROVINCE (cont'd)

| Operator | Location of Plant or Mine/Type | Start-Up Date | Mill/Plant Capacity (tonnes/day) | Process | Products | Remarks |
|---|---|---|---|---|---|---|
| **BRITISH COLUMBIA (cont'd)** | | | | | | |
| **Lafarge Canada Inc.**<br>c/o Lafarge Corporation<br>300-11130 Sunrise Valley Drive<br>Reston, VA 20195-1415<br>U.S.A.<br>Contact: Ms. Danielle Benoit<br>Telephone: (514) 738-1202<br>Facsimile: (514) 738-1124 | Falkland | | | | Gypsum | |
| | Kamloops/O | 1967 | 410 000 t/y | Dry process | Cement | |
| | Richmond/O | 1956 | 1 000 000 t/y | Dry process | Cement | |
| | Sumas | | | | Shale | |
| **Petro-Canada**<br>P.O. Box 2844<br>Calgary, Alberta<br>T2P 3E3<br>Contact: Mr. Al Mulloy<br>(gas processing)<br>Telephone: (403) 296-5375<br>Facsimile: (403) 296-3108 | Boundary Lake II | 1994 | 8 | Gas processing | Sulphur | Acquired from Amerada Hess Canada Ltd. in June 1996. |
| **Tilbury Cement Limited**<br>7777 Ross Road<br>P.O. Box 950<br>Delta, British Columbia<br>V4K 3S6<br>Contact: Mr. Ray Romaniuk<br>Telephone: (604) 946-0411<br>Facsimile: (604) 946-9215 | Delta | 1978 | 1 100 000 t/y | Dry process | Cement | Produced from limestone, shale, sand (siliceous ore), iron slag and gypsum. |
| **TransCanada Pipelines Limited**<br>TransCanada Midstream Division<br>Suite 3400<br>237 - 4th Avenue S.W.<br>Calgary, Alberta<br>T2P 5A4<br>Contact: Ms. Tracy Osterhold<br>Telephone: (403) 213-4143<br>Facsimile: (403) 213-4107 | Caribou | 1997 | ** | Gas processing | Sulphur | Acid gas injection. |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Westcoast Energy Inc.**<br>2200, 333 - 7 Avenue S.W.<br>Calgary, Alberta<br>T2P 2Z1<br>Contact: Mr. Terry Killackey<br>Telephone: (403) 297-1793<br>Facsimile: (403) 297-1799 | Fort Nelson | 1965 | 600 | Gas processing | Sulphur | Hydrogen sulphide is removed from natural gas by monoethanolamine absorption and diethanolamine absorption. Sulphur is produced by the Claus, Sulfreen and MCRC processes. |
| | Pine River | 1980 | 2 000 | Gas processing | Sulphur | |
| | Taylor | 1957 | 550 | Gas processing | Sulphur | |
| **Westroc Inc.**<br>2424 Lakeshore Road West<br>Mississauga, Ontario<br>L5J 1K4<br>Contact: Mr. Ivan Charvat<br>Telephone: (905) 823-9881<br>Facsimile: (905) 823-4464 | Vancouver | 1973<br>(new plant) | 600 | Crushing, calcining | Wallboard | Gypsum is obtained from Windermere Creek, British Columbia. |
| | Windermere Creek,<br>Invermere/O | 1957 | 3 200 | Crushing | Gypsum | Crude gypsum is shipped to the company's calcining plants in Vancouver and Calgary, and to other customers for use in the manufacture of gypsum and cement products. |

## NORTHWEST TERRITORIES

| | | | | | | |
|---|---|---|---|---|---|---|
| **BHP Diamonds Inc.**<br>2650 Park Place<br>666 Burrard Street<br>Vancouver, British Columbia<br>V6C 2X8<br>Contact: Mr. Graham Nicholls<br>Telephone: (604) 605-8666<br>Facsimile: (604) 681-5736 | Ekati mine,<br>Lac de Gras/O | 1998 | 9 000 | Crushing, separation by dense media and x-ray sorters | Diamonds | Canada's first diamond mine. Joint venture: BHP Diamonds Inc. (51%), Dia Met Minerals Ltd. (29%), Charles E. Fipke (10%) and Stewart L. Blusson (10%). |

## LIME PRODUCERS BY PROVINCE

| Operator | Quarry or Plant Location | Crushing/ Calcining Capacity (tonnes/day) | V - Vertical R - Rotary O - Other No. of Kilns | Products | If Stone is Purchased From Where, Whom and Predominant Usage |
|---|---|---|---|---|---|
| **NEW BRUNSWICK** | | | | | |
| **Havelock Lime**<br>(a division of Goldcorp Inc.)<br>P.O. Box 59<br>Havelock, New Brunswick<br>E0A 1W0<br>Contact: Mr. Frank Derrah<br>Telephone: (506) 534-2311<br>Facsimile: (506) 534-8241 | Havelock | 2 400 | ** | Hydra-lime+, Aglime, filler, crushed stone, high-calcium stone, lime dust, pulverized limestone | Livestock feed supplements, industrial filler, pulp and paper mills, glass manufacture and agriculture. |
| | | 500 | V-1<br>R-1 | Quicklime, hydrated lime | Quicklime is used in pulp and paper. Hydrated lime is used in mining and leaching operations and also for pH control. The quarry is owned by Havelock Lime. |
| **QUEBEC** | | | | | |
| **Graybec Inc.**<br>25 De Lauzon Street<br>Boucherville, Quebec<br>J4B 1E7<br>Contact: Mr. Germain Meunier<br>Telephone: (450) 449-2262<br>Facsimile: (450) 449-2256 | Bedford | 2 500 /<br>550 | R-1 | | |
| | Joliette | 6 000 /<br>650 | R-2 | High-calcium lime, quicklime, slaked lime, screened limestone, pulverized limestone | Steel, paper, chemical, mining, aluminum, gas desulphurization, pH control, and water treatment. |
| | Marbleton | 2 800 /<br>925 | V-1<br>R-1 | | |
| **ONTARIO** | | | | | |
| **Algoma Steel Inc.**<br>P.O. Box 1400<br>Sault Ste. Marie, Ontario<br>P6A 5P2<br>Contact: Mr. Gary Pidgen<br>Telephone: (705) 945-3485<br>Facsimile: (705) 945-4680 | Sault Ste. Marie | **/<br>600 | R | High-calcium lime, dolomitic lime | Limestone is purchased from Michigan Limestone, Roger City. Dolomite is purchased from Michigan Limestone at Cedarville, Michigan. |
| **BeachviLime Limited**<br>P.O. Box 190<br>Ingersoll, Ontario<br>N5C 3K5<br>Contact: Mr. Steven Brookshaw<br>Telephone: (519) 423-6283, ext. 230<br>Facsimile: (519) 423-6545 | Beachville | Limestone - 10 800<br>Dried limestone - 1 045<br>Lime - 2 300<br>Hydrated - 400 | R-5<br>O-1 | High-calcium lime, pulverized limestone, sized limestone | End Uses:<br>Limestone - metallurgical stone, aggregates, emission control.<br>Dried limestone - filler, glass and carpet industries, agriculture.<br>Lime - steel, building, mining, effluent treatment, paper.<br>Hydrated - effluent treatment, apple storage, mining. |

| | | | | | |
|---|---|---|---|---|---|
| **Global Stone Ingersoll Ltd.**<br>P.O. Box 98<br>Ingersoll, Ontario<br>N5C 3K1<br>Contact: Mr. Dick Bowman<br>Telephone: (519) 485-2730<br>Facsimile: (519) 486-6039 | Ingersoll | 5 000 /<br>675 | V-3<br>R-1 | High-calcium limestone,<br>quicklime | Limestone - metallurgical stone, aggregate for asphalt, concrete and road building.<br>Lime - steel, mining, effluent treatment. |
| **Guelph DoLime Limited**<br>P.O. Box 217<br>Ingersoll, Ontario<br>N5C 3K5<br>Contact: Mr. Steven Brookshaw<br>Telephone: (519) 824-2940<br>Facsimile: (519) 824-0248 | Guelph | 800 /<br>275 | V-10 | Dolomitic quicklime | Subsidiary of BeachviLime Limited, Ingersoll, Ontario. Dolomitic quicklime is used for steel. |
| **Lafarge Lime (Canada) Inc.**<br>Dundas Division<br>447 Moxley Road, R.R. 2<br>Dundas, Ontario<br>L9H 5E2<br>Contact: Mr. Brian Gatt<br>Telephone: (905) 628-8800<br>Facsimile: (905) 628-9300 | Dundas | 1 000 /<br>958 | R-3 | Dead burnt dolomite,<br>dolomitic lime, refractory lime | Steel, metallurgical and glass industries. |
| **Miller Minerals**<br>(a division of Miller Paving Limited)<br>P.O. Box 248<br>New Liskeard, Ontario<br>P0J 1P0<br>(Administration)<br>Telephone: (750) 647-4390<br>(Plant)<br>Telephone: (705) 672-2282 | Haileybury | 45 000 t/y<br><br>60 000 t/y | V-1<br><br>V-1 | High-calcium lime<br><br>Metallurgical limestone,<br>agricultural lime and<br>aggregates | |
| **Northern Lime Limited**<br>P.O. Box 1690<br>Blind River, Ontario<br>P0R 1B0<br>Contact: Mr. Steve François<br>Telephone: (705) 849-2201<br>Facsimile: (705) 849-2355 | Spragge | * * /<br>555 | R-2 | Lime | Formerly Koch Minerals of Canada Limited.<br>Water treatment, paper. |
| **Timminco Limited**<br>10 Bay Street, 9th Floor<br>Toronto, Ontario<br>M5J 2R8<br>Telephone: (613) 432-3621 | Haley Station | 450 /<br>145 | R-2 | Calcined dolomite | For internal production of magnesium metal. |

## LIME PRODUCERS BY PROVINCE (cont'd)

| Operator | Quarry or Plant Location | Crushing/ Calcining Capacity (tonnes/day) | V - Vertical R - Rotary O - Other No. of Kilns | Products | If Stone is Purchased From Where, Whom and Predominant Usage |
|---|---|---|---|---|---|
| **MANITOBA** | | | | | |
| **Continental Lime Ltd.**<br>190 - 3025 12th Street N.E.<br>Calgary, Alberta<br>T2E 7J2<br>Contact: Mr. Dave Grant<br>Telephone: (204) 449-2078 | Faulkner | 1 440 /<br>320 | R-1 | Crushed stone, high-calcium quicklime, calcium carbonate powders | |
| **ALBERTA** | | | | | |
| **Continental Lime Ltd.**<br>190 - 3025 12th Street N.E.<br>Calgary, Alberta<br>T2E 7J2<br>Contact: Mr. Ross Taylor<br>Telephone: (403) 673-3595 | Exshaw | 2 070 /<br>544 | R-2 | Pebble and crushed high-calcium lime, hydrated lime, calcium carbonate powders, granulated lime | |
| **Continental Lime Ltd.**<br>(Summit Plant)<br>190 - 3025 12th Street N.E.<br>Calgary, Alberta<br>T2E 7J2<br>Contact: Mr. Ross Taylor<br>Telephone: (403) 673-3595 | Hazell | 1 200 /<br>230 | V-4 | Crushed and pulverized high-calcium lime, hydrated lime, pulverized limestone | |
| **Rogers Sugar Ltd.**<br>5405 - 64th Street<br>Taber, Alberta<br>T1G 2C4<br>Contact: Mr. Cliff Thomas<br>Telephone: (403) 223-3535<br>Facsimile: (403) 223-9699 | Taber | ** /<br>180 | V-1 | High-calcium lime | Captive use. Limestone is purchased from Nordegg Lime Ltd. Company name changed from Alberta Sugar Company. |

## BRITISH COLUMBIA

| | | | | | |
|---|---|---|---|---|---|
| **Chemical Lime Company of Canada Inc.**<br>20303 - 102B Avenue<br>Langley, British Columbia<br>V1M 3H1<br>Contact: Mr. R.M. Horsman<br>Telephone: (604) 888-2575<br>Contact: Mr. Scott Hinds<br>Telephone: (604) 888-4333<br>Facsimile: (604) 888-4238 | Langley | 600 /<br>400 | 2 calciners | High-calcium quicklime, ground limestone, agricultural limestone, hydrated lime, lime slurry | Purchased and used by Texada Quarrying Ltd. |
| **Continental Lime Ltd.**<br>190 - 3025 12th Street N.E.<br>Calgary, Alberta<br>T2E 7J2<br>Contact: Mr. Ross Taylor<br>Telephone: (403) 673-3595 | Pavilion Lake | 2 050 /<br>510 | R-2 | Crushed stone, high-calcium quicklime | |

# METALLURGICAL WORKS IN CANADA - NONFERROUS AND PRECIOUS METALS

## METALLURGICAL WORKS IN CANADA - NONFERROUS AND PRECIOUS METALS

| Operator | Location of Plant | Annual Rated Capacity | Products | Remarks |
|---|---|---|---|---|
| | | (tonnes) | | |
| **ALUMINUM** | | | | |
| **Alcan Smelters and Chemicals Limited**<br>1188 Sherbrooke Street West<br>Montréal, Quebec<br>H3A 3G2<br>Contact: Mr. Carmine Nappi<br>Telephone: (514) 848-8134<br>Facsimile: (514) 848-1410 | Alma, Isle Maligne, Quebec | 50 000 | Primary aluminum, pure or alloyed; forms: hot metal, ingot for remelting, extrusion billets, rolling blocks, wire bars for fabrication; brand Alcan | Aluminum smelter. The closing process has started and the plant will be permanently closed by the end of 1999. |
| | Beauharnois, Quebec | 49 000 | | Aluminum smelter. |
| | Jonquière, Quebec | 238 000 | | Aluminum smelter. Inorganic chemical complex. Petroleum coke calcining plant. |
| | La Baie, Quebec | 186 000 | | Aluminum smelter. |
| | Laterrière, Quebec | 210 000 | | Aluminum smelter. |
| | Shawinigan, Quebec | 88 000 | | Aluminum smelter. |
| | Kitimat, British Columbia | 272 000 | | Aluminum smelter. Petroleum coke calcining plant. |
| **Alcoa Aluminerie Lauralco Inc.**<br>1 Des Sources Boulevard<br>Deschambault, Quebec<br>G0A 1S0<br>Contact: Ms. Christine Martin<br>Telephone: (418) 286-5287<br>Facsimile: (418) 286-5405 | Deschambault, Quebec | 230 000 | Primary aluminum in T-ingot forms | Aluminum smelter. ISO 9002 and ISO 14001. |
| **Aluminerie Alouette Inc.**<br>400 de la Pointe-Noire Road<br>P.O. Box 1650<br>Sept-Îles, Quebec<br>G4R 5M9<br>Contact: Ms. Gloria Pardini<br>Telephone: (418) 964-7340<br>Facsimile: (418) 964-7300 | Sept-Îles, Quebec | 230 000 | Primary aluminum ingots and pigs | Aluminum smelter. |

| | | | | |
|---|---|---|---|---|
| **Aluminerie de Bécancour Inc.**<br>5555 Pierre-Thibault Street<br>Bécancour, Quebec<br>G0X 1B0<br>Contact: Ms. Karen Loiselle<br>Telephone: (819) 294-3013<br>Facsimile: (819) 294-3011 | Bécancour, Quebec | 360 000 | Primary aluminum ingot | Aluminum smelter. |
| **Canadian Reynolds Metals Company, Limited**<br>100 Maritime Road<br>Baie-Comeau, Quebec<br>G4Z 2L6<br>Telephone: (418) 296-3311<br>Facsimile: (418) 296-7121 | Baie-Comeau, Quebec | 400 000 | Primary aluminum, pure or alloyed, in ingot forms for remelting or extrusion billets, rolling blocks | Aluminum smelter. |

## ANTIMONIAL LEAD

| | | | | |
|---|---|---|---|---|
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 3 000 (antimonial lead) | "Cominco Brand" in 56-lb pigs; antimony content, 17-25%; arsenic content, 1-7%. Also made in 5000-lb blocks | Reduction in short rotary furnace of slag from softener. |
| **Noranda Inc.**<br>Brunswick Smelter<br>692 Main Street<br>Belledune, New Brunswick<br>E8G 2M1<br>Contact: Mr. Phil Evans<br>Telephone: (506) 522-2100<br>Facsimile: (506) 522-7089 | Belledune, New Brunswick | 3 000 (antimonial lead) | Antimony content, 6-10% in 5000-lb blocks | Reduction in short rotary furnace as softening slag. |

## ARSENICAL LEAD

| | | | | |
|---|---|---|---|---|
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 400 | 56-lb pigs | |

## METALLURGICAL WORKS IN CANADA - NONFERROUS AND PRECIOUS METALS (cont'd)

| Operator | Location of Plant | Annual Rated Capacity | Products | Remarks |
|---|---|---|---|---|
| | | (tonnes) | | |
| **BISMUTH** | | | | |
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 300 | "Tadanac Brand" in 28-lb bars (intermittent operation) (99.99%); also 5/9 grade of high-purity bismuth | Bismuth-lead-copper slags from the silver refining process are treated using the Parkes and chlorination process to produce refined bismuth. |
| **Noranda Inc.**<br>Brunswick Smelter<br>692 Main Street<br>Belledune, New Brunswick<br>E8G 2M1<br>Contact: Mr. Phil Evans<br>Telephone: (506) 522-2100<br>Facsimile: (506) 522-7089 | Belledune, New Brunswick | 3 000 | Lead-bismuth alloy, 8.5% bismuth | Produced as a co-product of lead refinery. |
| **CADMIUM** | | | | |
| **Canadian Electrolytic Zinc Limited**<br>860 Cadieux Boulevard<br>Valleyfield, Quebec<br>J6S 4W2<br>Telephone: (450) 373-9144 | Valleyfield, Quebec | 440 | Metallic cadmium, sold as "CEZ Brand," in stick; ball | Cadmium residues from zinc refining; leached and precipitated as sponge, briquetted and cast. |
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 1 000 | Cadmium-tin-lead in 100-lb pigs and 2000-lb jumbos | |
| | | 1 300 | "Tadanac Brand" in ball and stick | Cadmium residues from zinc refining; leached and precipitated as sponge, briquetted and cast. |
| **Falconbridge Limited**<br>Kidd Metallurgical Division<br>P.O. Box 2002<br>Timmins, Ontario<br>P4N 7K1<br>Contact: Mr. Brent Chertow<br>Telephone: (705) 235-7629<br>Facsimile: (705) 235-7318 | Timmins, Ontario | 800 | Stick and mossy form | Cadmium residues from zinc solution are precipitated, purified and cast. |

| | | | | |
|---|---|---|---|---|
| **Hudson Bay Mining and Smelting Co., Limited**<br>P.O. Box 1500<br>Flin Flon, Manitoba<br>R8A 1N9<br>Contact: Mr. Gary Allen<br>Telephone: (204) 687-2366<br>Facsimile: (204) 687-4193 | Flin Flon, Manitoba | ** | Metallic cadmium in ball and stick form | Cadmium residues from zinc solution are precipitated and leached; metal is recovered by electrolysis. |

## CALCIUM

| | | | | |
|---|---|---|---|---|
| **Timminco Limited**<br>10 Bay Street, 9th Floor<br>Toronto, Ontario<br>M5J 2R8<br>Telephone: (613) 432-3621 | Haley Station, Ontario | 900 | Calcium - lumps, ingots, billets, granules, rods, calcium-aluminum alloys | Reduction of lime by aluminum under high vacuum in gas-fired retort furnaces. |

## CALCIUM LEAD

| | | | | |
|---|---|---|---|---|
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 8 000 | 2000-lb jumbos | Working towards the production of 56- and 100-lb pigs. |

## COBALT

| | | | | |
|---|---|---|---|---|
| **Cobalt Refinery Company Inc., The**<br>10101 - 114th Street<br>Box 2000<br>Fort Saskatchewan, Alberta<br>T8L 4G6<br>Contact: Mr. Dennis Maschmeyer<br>Telephone: (780) 992-7000<br>Facsimile: (780) 998-7171 | Fort Saskatchewan, Alberta | 2 600 | Refined cobalt metal (briquettes and powder) | Proprietary hydrometallurgical plant employing ammonia leach and hydrogen reduction technology for processing nickel- and cobalt-containing feed materials into refined nickel and cobalt products. Ammonium sulphate, copper sulphide and zinc sulphide are also produced. |
| **Inco Limited**<br>Suite 1500<br>145 King Street West<br>Toronto, Ontario<br>M5H 4B7 | Port Colborne, Ontario | 1 360 | Electrocobalt | Electrocobalt produced from CRED residue. |
| | Thompson, Manitoba | 470 | Cobalt oxide | Cobalt oxide recovered from nickel refinery electrolyte. |

## METALLURGICAL WORKS IN CANADA - NONFERROUS AND PRECIOUS METALS (cont'd)

| Operator | Location of Plant | Annual Rated Capacity | Products | Remarks |
|---|---|---|---|---|
| | | (tonnes) | | |
| **COPPER** | | | | |
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 9 000 | Copper lead | 56- and 100-lb pigs; 2000-lb jumbos. |
| | | 6 000 | Copper sulphate | Treatment of copper matte. |
| | | 600 | Copper arsenate | Treatment of copper matte, silver refinery dust, and "Duncan Dome" material. |
| | | 2 000 | Sodium antimonate | |
| **Falconbridge Limited**<br>Kidd Metallurgical Division<br>P.O. Box 2002<br>Timmins, Ontario<br>P4N 7K1<br>Contact: Mr. Brent Chertow<br>Telephone: (705) 235-7629<br>Facsimile: (705) 235-7318 | Timmins, Ontario | 130 000 | Copper cathode | Mitsubishi continuous smelting. |
| | | 176 000 | Anode copper | Hazelett continuous cast anodes. |
| **Falconbridge Limited**<br>Sudbury Division<br>Falconbridge, Ontario<br>P0M 1S0<br>Contact: Mr. A.G. Hayward<br>Telephone: (705) 693-2761<br>Facsimile: (705) 699-3110 | Falconbridge, Ontario | 600 000 (conc.) | Copper-nickel matte | Copper-nickel conc. is roasted and then smelted in electric furnaces and converted to produce matte for shipment to the company's electrolytic refinery in Norway. |
| **Gibraltar Mines Limited**<br>(a subsidiary of Taseko Mines Limited)<br>P.O. Box 130<br>McLeese Lake, British Columbia<br>V0L 1P0<br>Contact: Mr. John Hutchings,<br>Mine Manager<br>Telephone: (250) 297-6211,<br>ext. 364<br>Facsimile: (250) 297-6548 | McLeese Lake, British Columbia | 9 000 | Cathode copper | Dissolved copper-in-solution from heap leaching operations is treated in a solvent extraction plant and then electrowinned to produce copper cathode. |

| | | | | |
|---|---|---|---|---|
| **Hudson Bay Mining and Smelting Co., Limited**<br>P.O. Box 1500<br>Flin Flon, Manitoba<br>R8A 1N9<br>Contact: Mr. Gary Allen<br>Telephone: (204) 687-2366<br>Facsimile: (204) 687-4193 | Flin Flon, Manitoba | 64 000 copper | Anode copper | Roasting furnaces, one reverberatory furnace and two converters for treating copper flotation conc. and zinc-plant residues. Additional concentrates are purchased and processed to metal in the copper metallurgical plant. |
| **Inco Limited**<br>Suite 1500<br>145 King Street West<br>Toronto, Ontario<br>M5H 4B7 | Copper Cliff, Ontario | 170 000 | Blister copper, for company's refinery | Oxygen flash smelting of nickel-copper conc. Through flotation separation of copper-nickel in bessemer matte, copper sulphides are melted and blown to produce blister copper. |
| | | 170 000 | "ORC" brand electrolytic copper cathodes | Blister copper is processed in anode furnaces and refined by electrolysis. Recovers and electrowins copper from nickel refinery residue. |
| **Noranda Inc.**<br>Brunswick Smelter<br>692 Main Street<br>Belledune, New Brunswick<br>E8G 2M1<br>Contact: Mr. Phil Evans<br>Telephone: (506) 522-2100<br>Facsimile: (506) 522-7089 | Belledune, New Brunswick | 4 000 | Copper-lead matte | Co-product of lead refinery. |
| **Noranda Inc.**<br>CCR Division<br>220 Durocher Street<br>Montréal-Est, Quebec<br>H1B 5H6<br>Telephone: (514) 645-2311 | Montréal-Est, Quebec | 360 000 | Electrolytic copper "CCR Brand" ingot bars, ingots, cathodes, cakes and billets | Refines anode copper from Horne and Gaspé smelters, as well as purchased scrap and blister. |
| | | 8 000 kg | Copper sulphate by vacuum evaporation and crystallization; "Noranda Brand" in regular commercial and agricultural grades | |
| **Noranda Inc.**<br>Horne Smelter<br>P.O. Box 4000<br>Rouyn-Noranda, Quebec<br>J9X 5B6<br>Contact: Mr. Claude Bélanger<br>Telephone: (819) 762-7764<br>Facsimile: (819) 762-1976 | Rouyn-Noranda, Quebec | 900 000 | Copper anodes | Processes copper conc. from mines worldwide. Also smelts custom materials including scrap. Sulphuric acid plant in operation. |

## METALLURGICAL WORKS IN CANADA - NONFERROUS AND PRECIOUS METALS (cont'd)

| Operator | Location of Plant | Annual Rated Capacity | Products | Remarks |
|---|---|---|---|---|
| | | (tonnes) | | |
| **COPPER (cont'd)** | | | | |
| **Noranda Inc.**<br>Mines Gaspé Division<br>53, chemin de la mine<br>Murdochville, Quebec<br>G0E 1W0<br>Contact: Mr. Serge St-Pierre<br>Telephone: (418) 784-4201<br>Facsimile: (418) 784-2503 | Murdochville, Quebec | 320 000 (conc. and copper scrap) | Copper anodes | One reverberatory furnace for wet charge concentrates, three Pierce-Smith converters with concentrate injection, one anode furnace, and one Outukumpu casting wheel. Processes copper conc. originating from its own E Zone mine and Mount Copper pit, and local mines. Its annual capacity is expected to increase to 350 000 t/y in 1999. Since October is, 1999, only concentrates and scrap from outside sources have been processed. |
| **INDIUM** | | | | |
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 65 000 kg | "Cominco Brand" standard grade ingots, 99.999 grade ingots, 1, 3 and 10 kg | By-product of zinc-lead production. This is based on previously announced capacity dating back to 1988. |
| **Falconbridge Limited**<br>Kidd Metallurgical Division<br>P.O. Box 2002<br>Timmins, Ontario<br>P4N 7K1<br>Contact: Mr. Brent Chartow<br>Telephone: (705) 235-7629<br>Facsimile: (705) 235-7318 | Timmins, Ontario | 32 | 4/9 grade ingots, 10kg | The plant recovers the by-product from the electrostatic precipitator dust of the copper smelter. |
| **LEAD** | | | | |
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 120 000 (refined lead) | Refined lead "Tadanac Brand" in 56-, 100- and 2000-lb pigs | Concentrate is flash smelted. Slag is treated in fuming plant. Betts electrolytic process. |
| | | Varies | Custom lead alloys in 56- and 100-lb pigs; 2000-lb jumbos | |

| | | | | |
|---|---|---|---|---|
| **Noranda Inc.**<br>Brunswick Smelter<br>692 Main Street<br>Belledune, New Brunswick<br>E8G 2M1<br>Contact: Mr. Phil Evans<br>Telephone: (506) 522-2100<br>Facsimile: (506) 522-7089 | Belledune, New Brunswick | 110 000 | Refined lead and lead alloys "BM&S Brand" in 25-kg pigs plus 1-t jumbos | Conc. is sintered and then smelted in a single blast furnace to produce lead bullion. |

## MAGNESIUM

| | | | | |
|---|---|---|---|---|
| **Norsk Hydro Canada Inc.**<br>7000 Raoul-Ducheene Boulevard<br>Bécancour, Quebec<br>G0X 1B0<br>Contact: Mr. André Faucher<br>Telephone: (819) 294-4546<br>Facsimile: (819) 294-9621 | Bécancour, Quebec | 45 000 | Pure and alloyed magnesium in the form of ingot and large ingot | Smelter and foundry started up in late 1989. Plant site is capable of expansion to 240 000 t/y. Recycling plant. |
| **Timminco Limited**<br>10 Bay Street, 9th Floor<br>Toronto, Ontario<br>M5J 2R8<br>Telephone: (613) 432-3621 | Haley Station, Ontario | 7 000 | High-purity magnesium and magnesium alloy, ingots, billets, extrusions and granules | Magnesium is produced by thermal methods involving reduction of calcined dolomite by ferrosilicon under high vacuum in gas-fired retort furnaces. Other metals produced are calcium and strontium. |

## MERCURY

| | | | | |
|---|---|---|---|---|
| **Johnson Matthey Limited**<br>130 Glidden Road<br>Brampton, Ontario<br>L6W 3M8<br>Telephone: (905) 453-6120 | Brampton, Ontario | ** | Distilled mercury | Technical double and triple distilled grades for industrial and dental uses. |

## MOLYBDENUM

| | | | | |
|---|---|---|---|---|
| **Eldorado Gold Mines Inc.**<br>2147 Portage Avenue<br>Winnipeg, Manitoba<br>R3J 0L4<br>Telephone: (204) 837-1383 | Duparquet, Quebec | 8 100 (contained Mo) | Molybdic oxide | Treats molybdenite concentrates (custom roasting). |
| **Thompson Creek Mining Limited**<br>P.O. Box 4001<br>Fraser Lake, British Columbia<br>V0J 1S0<br>Contact: Mr. Gord Coyle<br>Telephone: (250) 699-6211, ext. 386<br>Facsimile: (250) 699-7775 | Endako, 16 km W of Fraser Lake, British Columbia | 7 300 | Molybdenite conc., molybdic oxide, lubricant-grade molybdenum disulphide | Most of the molybdenite conc. is roasted to convert it to molybdic oxide and sold on domestic and foreign markets. Surplus roasting capacity is used for custom roasting. Some molybdenite conc. is refined to lubricant grade. |

## METALLURGICAL WORKS IN CANADA - NONFERROUS AND PRECIOUS METALS (cont'd)

| Operator | Location of Plant | Annual Rated Capacity | Products | Remarks |
|---|---|---|---|---|
| | | (tonnes) | | |
| **NICKEL** | | | | |
| **Cobalt Refinery Company Inc., The**<br>10101 - 114th Street<br>Box 2000<br>Fort Saskatchewan, Alberta<br>T8L 4G6<br>Contact: Mr. Dennis Maschmeyer<br>Telephone: (780) 992-7000<br>Facsimile: (780) 998-7171 | Fort Saskatchewan, Alberta | 27 500 | Refined nickel (briquettes and powder) | Proprietary hydrometallurgical plant employing ammonia leach and hydrogen reduction technology for processing nickel- and cobalt-containing feed materials into refined nickel and cobalt products. Ammonium sulphate, copper sulphide and zinc sulphide are also produced. |
| **Falconbridge Limited**<br>Sudbury Division<br>Falconbridge, Ontario<br>P0M 1S0<br>Contact: Mr. A.G. Hayward<br>Telephone: (705) 693-2761<br>Facsimile: (705) 699-3110 | Falconbridge, Ontario | 600 000 (conc.) | Copper-nickel matte | Copper-nickel conc. is roasted and then smelted in electric furnaces and converted to produce matte for shipment to the company's electrolytic refinery in Norway. |
| **Inco Limited**<br>Suite 1500<br>145 King Street West<br>Toronto, Ontario<br>M5H 4B7 | Copper Cliff, Ontario | • • | Copper-nickel bessemer matte | Oxygen flash smelting with two furnaces. |
| | | | Nickel sulphide and nickel oxide sinter for company's refineries; Nickel Oxide Sinter 75 for market | Nickel-copper sulphides are separated through flotation; nickel sulphide product is fluid-bed roasted to nickel oxide sinter for refining and marketing. |
| | | 60 900 | Nickel pellets, nickel powders and iron-nickel pellets for market | Metallic copper-nickel conc. is refined by Kaldo top-blown rotary converters and Inco pressure carbonyl process. |
| | | | Nickel refinery residue, nickel sulphate | Recovered from copper tank house solutions. |
| | Port Colborne, Ontario | 64 000 | Packed Inco electrolytic nickel squares and rounds | Packaging facility for Ontario and Manitoba Divisions' products. |
| | Thompson, Manitoba | limited to 420 000 t/y (conc.) by sulphur dioxide emissions | Nickel-copper sulphide ingots | Fluidized bed roaster, electric furnace, Peirce Smith converters. Nickel matte is cast into anode forms. Shipped to Copper Cliff for refining. |
| | | 56 800 | Inco electrolytic nickel | Electrolytic refining of nickel sulphide anodes to pure nickel cathodes for market. Cobalt oxide is also produced. |

## PRECIOUS METALS

| | | | | |
|---|---|---|---|---|
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 80 000 oz<br><br>12 000 000 oz | Gold bullion<br><br>Silver "Tadanac Brand" in 1000-oz bars | Recovers precious metals from own and custom ores as a by-product of lead refinery. Also custom refining. |
| **Engelhard Canada Limited**<br>1 - 3551 Viking way<br>Richmond, British Columbia<br>V6V 1W1<br>Contact: Mr. Al Brodie<br>Telephone: (604) 270-8778<br>Telephone: 1 (800) 555-1350<br>Facsimile: (604) 270-6529 | Richmond, British Columbia | ** | Refiners of gold, silver and platinum group metals, and producers of alloys in sheet, bars, wire, tubing, salts, solders, etc., as well as other manufactured and semi-manufactured forms | Producers and suppliers of precious metals and their alloys for use in industry and for investment. Recovery of precious metals from scrap. |
| **Golden West Refining (Canada) Ltd.**<br>1500 Alberni Street<br>Vancouver, British Columbia<br>V6G 3C9<br>Contact: Mr. John Downie, President<br>Telephone: (604) 946-4554, ext. 310<br>Facsimile: (604) 946-4523 | Lot 30, Callison Estate, Dawson City, Yukon | ** | Refiners of gold, silver and platinum group metals, and producers of grain and bar | Producers and suppliers of precious metals and their alloys for use in the arts, by mints and industry and for investment. Recovery of precious metals from scrap, dross, liquids, dore, and high-grade concentrates. Product is 0.9999+ fine. |
| **Handy & Harman of Canada, Limited**<br>290 Carlingview Drive<br>Rexdale, Ontario<br>M9W 5G1<br>Contact: Mr. Keith Perrin<br>Telephone: (416) 675-1860<br>Facsimile: (416) 675-1956 | Toronto, Ontario | ** | Silver and gold refiners; silver and silver alloy sheet and wires; brazing alloys and solders | Precious metals and alloys are produced for use in the arts and industry. Recovery of precious metals from scrap and dross. |
| **Hudson Bay Mining and Smelting Co., Limited**<br>P.O. Box 1500<br>Flin Flon, Manitoba<br>R8A 1N9<br>Contact: Mr. Gary Allen<br>Telephone: (204) 687-2366<br>Facsimile: (204) 687-4193 | Flin Flon, Manitoba | ** | Anode copper containing gold and silver | Gold and silver are recovered from the anode copper at outside refineries. |

## METALLURGICAL WORKS IN CANADA - NONFERROUS AND PRECIOUS METALS (cont'd)

| Operator | Location of Plant | Annual Rated Capacity | Products | Remarks |
|---|---|---|---|---|
| | | (tonnes) | | |
| **PRECIOUS METALS (cont'd)** | | | | |
| **Imperial Smelting and Refining Co. of Canada Ltd.**<br>451 Denison Street<br>Markham, Ontario<br>L3R 1B7<br>Contact: Mr. K. Mason<br>Telephone: (905) 475-9566<br>Facsimile: (905) 475-0703 | Markham, Ontario | • • | Recovery and refining of gold, silver and platinum group metals from low-grade sweeps, scrap, dross and ores; producers of all precious metal products and their alloys for use in sheet, coin blanks, bars, wire, tubing, casting grains, solders, seamless welding blanks and findings | Canada's only platinum group metals refiner. Producer and supplier of 0.9999+ quality fine gold and specialty precious metal alloys. |
| **Inco Limited**<br>Suite 1500<br>145 King Street West<br>Toronto, Ontario<br>M5H 4B7 | Copper Cliff, Ontario | • • | Fine gold, silver and platinum group metals intermediates | Recovered from copper anode slimes and nickel refinery residue. |
| **Johnson Matthey Limited**<br>130 Glidden Road<br>Brampton, Ontario<br>L6W 3M8<br>Telephone: (905) 453-6120 | Brampton, Ontario | • • | Refined gold, silver and platinum group metals and alloys in sheet, coin blanks, bars, wire, tubing, salts, solders, etc., as well as other manufactured and semi-manufactured forms; minted items; platinum and platinum alloy laboratory apparatus and analytical-grade chemicals for analysis of minerals and metals | Producers and suppliers of precious metals and their alloys for use in the arts, by mints and industry, and for investment. Recovery of precious metals from scrap and dross. |
| | | | Refiners of gold, silver and platinum group metals; producers of precious metal chemicals | Treatment and refining of gold and silver ores and high-grade conc. Recovery of precious metals from industrial and jewellery scrap. |
| **Noranda Inc.**<br>Brunswick Smelter<br>692 Main Street<br>Belledune, New Brunswick<br>E8G 2M1<br>Contact: Mr. Phil Evans<br>Telephone: (506) 522-2100<br>Facsimile: (506) 522-7089 | Belledune, New Brunswick | 300 000 kg | Silver dore cast in anodes | Co-product of lead refinery. |

| | | | | |
|---|---|---|---|---|
| **Noranda Inc.**<br>CCR Division<br>220 Durocher Street<br>Montréal-Est, Quebec<br>H1B 5H6<br>Telephone: (514) 645-2311 | Montréal-Est, Quebec | Gold 30 000 kg; silver 720 000 kg | "CCR Brand" fine gold and silver recovered electrolytically from slimes; gold - "kilo" bars and 400-oz bars | Recovered as by-products in the electrolytic refining of copper anodes produced at the Horne and Gaspé smelters and elsewhere. |
| **Royal Canadian Mint**<br>320 Sussex Drive<br>Ottawa, Ontario<br>K1A 0G8<br>Contact: Mr. David Madge<br>Telephone: (416) 698-5451<br>Facsimile: (416) 698-5025 | Ottawa, Ontario | 217 000 kg | Refiners of gold; gold products include coins, London Good Delivery 400-oz bars and 100-oz COMEX Good Delivery bars, as well as grain gold and shot for jewellery and electronics industries | Treats base bullion from Canadian, U.S. and foreign mines, as well as scrap, jewellery, etc. Customers' product is refined to 0.9999 fine. |

## SELENIUM AND TELLURIUM

| | | | | |
|---|---|---|---|---|
| **Inco Limited**<br>Suite 1500<br>145 King Street West<br>Toronto, Ontario<br>M5H 4B7 | Copper Cliff, Ontario | 47 000 kg<br>8 200 kg | Selenium cake<br>Tellurium dioxide cake | Recovered as by-products from slimes resulting from the electro-refining of copper. |
| **Noranda Inc.**<br>CCR Division<br>220 Durocher Street<br>Montréal-Est, Quebec<br>H1B 5H6<br>Telephone: (514) 645-2311 | Montréal-Est, Quebec | 32 700 kg | "Noranda Brand" commercial-grade tellurium powder, stick, lumps and tellurium dioxide | |
| | | 700 000 kg | "Noranda Brand" commercial-grade and high-purity selenium, selenious acid, sodium selenate, sodium selenite, and iron selenide | Recovered as by-products from slimes in the electrolytic refining of copper anodes produced at the Horne and Gaspé smelters and of other feed materials. |

## STRONTIUM

| | | | | |
|---|---|---|---|---|
| **Timminco Limited**<br>10 Bay Street, 9th Floor<br>Toronto, Ontario<br>M5J 2R8 | Westmeath, Ontario | 500 | "Timminco Brand" strontium metal 99%; strontium-aluminum alloys | Oxide reduction process. |

## METALLURGICAL WORKS IN CANADA - NONFERROUS AND PRECIOUS METALS (cont'd)

| Operator | Location of Plant | Annual Rated Capacity | Products | Remarks |
|---|---|---|---|---|
| | | (tonnes) | | |
| **TITANIUM** | | | | |
| **QIT Fer et Titane Inc.**<br>1625 Marie-Victorin Highway<br>Tracy, Quebec<br>J3R 1M6<br>Contact: Mr. Terry Bowles<br>Telephone: (450) 746-3071<br>Facsimile: (450) 746-1101 | Tracy, Quebec | 1 100 000 | Titanium dioxide slag (SORELSLAG) | Smelts ilmenite ores from Allard Lake in nine electric furnaces to produce high-titanium dioxide slag (SORELSLAG) and high-purity pig iron (SORELMETAL). |
| | | 200 000 | High-purity titania slag (UGS) | The SORELSLAG slag is beneficiated by a chemical process to produce a titanium dioxide concentrate (UGS). |
| | | 440 000 | Steel billets (SORELSTEEL) | |
| | | 900 000 | Pig iron (SORELMETAL) | |
| **URANIUM** | | | | |
| **Cameco Corporation**<br>2121 - 11th Street West<br>Saskatoon, Saskatchewan<br>S7M 1J3<br>Contact: Mr. B. Steane<br>Telephone: (905) 885-4511<br>Facsimile: (905) 885-9124 | Blind River, Ontario | 18 000 tU | Uranium as uranium trioxide powder - natural | Uranium mill conc. (tri-uranium octoxide) is refined to nuclear-purity uranium trioxide through solvent extraction and shipped to Port Hope for conversion. |
| | Port Hope, Ontario | 1 500 tU | Uranium metal and alloys - natural and depleted | Magnesium reduction is used to reduce uranium tetrafluoride to metal. Vacuum melting, casting and machining to various forms. |
| | | 10 500 tU | Uranium as uranium hexafluoride - natural | Uranium trioxide is converted to uranium hexafluoride for export markets. |
| | | 2 500 tU | Uranium as ceramic uranium dioxide powder - natural | Uranium troxide is converted to uranium dioxide, ready for pressing and sintering to form pellets for CANDU reactor fuel. |
| **ZINC** | | | | |
| **Canadian Electrolytic Zinc Limited**<br>860 Cadieux Boulevard<br>Valleyfield, Quebec<br>J6S 4W2<br>Telephone: (450) 373-9144 | Valleyfield, Quebec | 255 000 | Slab zinc "CEZ Brand" in all grades; regular and jumbo shapes, and shot; zinc powder | Roasting of zinc conc. with production of sulphuric acid. Leaching of calcine and electrowinning of zinc. Cathode zinc is melted and cast according to customer specifications. |

| | | | | |
|---|---|---|---|---|
| **Cominco Ltd.**<br>500 - 200 Burrard Street<br>Vancouver, British Columbia<br>V6C 3L7<br>Contact: Ms. Kea Barker<br>Telephone: (604) 682-0611<br>Facsimile: (604) 685-3019 | Trail, British Columbia | 290 000 | Zinc "Tadanac Brand" in 56-lb slabs in industry-recognized grades; strip jumbos, in several different alloy grades, 2400 lb each; C-cast jumbos, 2400-lb and 23-lb slabs of die-casting zinc | Roasting or pressure leaching of zinc conc. followed by solution purification and refined zinc production by electrolysis. Cathodes are melted and cast. |
| **Falconbridge Limited**<br>Kidd Metallurgical Division<br>P.O. Box 2002<br>Timmins, Ontario<br>P4N 7K1<br>Contact: Mr. A.G. Hayward<br>Telephone: (705) 693-2761<br>Facsimile: (705) 699-3110 | Timmins, Ontario | 145 000 | Slab zinc, special high grade, high grade, and prime western of "Kidd Brand" in 55-lb slabs and various jumbo ingots | Roasting of zinc conc., leaching and electrolysis of solution. Cathodes are melted and cast to customer needs. |
| **Hudson Bay Mining and Smelting Co., Limited**<br>P.O. Box 1500<br>Flin Flon, Manitoba<br>R8A 1N9<br>Contact: Mr. Gary Allen<br>Telephone: (204) 687-2366<br>Facsimile: (204) 687-4193 | Flin Flon, Manitoba | 84 000 zinc | Slab zinc, special high grade, prime western, zinc alloys | Two-stage pressure leaching of zinc flotation concentrate followed by are refined zinc production by electrolysis. Cathodes melted and zinc cast in slabs and blocks. Additional concentrates are purchased and processed to metal in the zinc metallurgical plant. |